July 31, 2006

VIA EXPRESS MAIL

Mr. Bob Boggs
California Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

RE: Presidio of San Francisco
Draft Construction Completion Report; Fill Site 6A Remediation

Dear Mr. Boggs:

The Presidio Trust is pleased to provide the Department of Toxics Substances Control (DTSC) with the enclosed documented entitled *Draft Construction Completion Report; Fill Site 6A Remediation; Presidio of San Francisco, California* dated July 2006. An electronic version of this document in PDF format is also enclosed on CD.

Please call me with questions at (415) 561-4259.

Sincerely,

Craig Cooper

Craig Cooper
Environmental Remediation Program Manager

Enclosure

Cc: Brian Ullensvang, NPS
Devender Narala, RWQCB
Doug Kern, RAB
Mark Youngkin, RAB (without enclosure)

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Draft
Construction Completion Report
Fill Site 6A Remediation
Presidio of San Francisco, California

Prepared for

The Presidio Trust
1750 Lincoln Blvd., P.O. Box 29052
San Francisco, California 94129-0052

MACTEC Project No. 55213 00312

July 31, 2006

MACTEC

MACTEC Engineering and Consulting, Inc.
5341 Old Redwood Highway, Suite 300
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Fill Site 6A Remediation
Presidio of San Francisco, California

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This document was prepared by MACTEC Engineering and Consulting, Inc. (MACTEC) at the direction of the Presidio Trust (Trust) for the sole use of the Trust, the National Park Service (NPS), and regulatory agencies, the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of the Trust. This report and the interpretations, conclusions, and recommendations contained within are based, in part, on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.

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DISTRIBUTION

ACRONYM LIST

BMPs	Best Management Practices
BTEX	benzene, toluene, ethylbenzene, and xylenes
bgs	below ground surface
Chaudhary	Chaudhary and Associates
Clearwater	Clearwater Hydrology
Colma	Colma Formation
COC	chemical of concern
COPC	chemicals of potential concern
Crissy Marsh	Crissy Field Marsh
CQA	Contractor Quality Assurance
Curtis and Tompkins	Curtis & Tompkins Laboratory
cy	cubic yard(s)
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EKI	Erler & Kalinowski, Inc.
ERRG	Engineering Resources Remediation Group
EPA	Environmental Protection Agency
ESSSZ	Ecological Special Status Species Zone
FDS	fuel delivery system
FS 6A	Fill Site 6A
FS 6B	Fill Site 6B
FSP	Field Sampling Plans
ft	feet
GMPA	General Management Plan Amendment
Geologica	Geologica, Inc.
GSA	General Services Agency
ICP	Inductively Coupled Plasma
ICS	Interference Check Standard
IECs	inter-element corrections
J	estimated value(s)
kg	kilogram(s)
L	liter(s)
LCS	laboratory control samples
LCSD	laboratory control duplicate samples
LUC	land use control

LUCMRR	LUCs Master Reference Report
LUN	land use notification
LUR	land use restriction
MACTEC	MACTEC Engineering and Consulting, Inc.
MCL	maximum contaminant level
MDL	method detection limit
µg	microgram(s)
µg/L	micrograms per kilogram
mg	milligram(s)
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spikes
MSD	matrix spikes duplicates
MSF	multi-component spectral fitting
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NAVD88	North American Vertical Datum of 1988
NPS	National Park Service
O&M	operation and maintenance
OCP	organochlorine pesticide
OSHA	Occupational Safety Health Administration
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
Pcf	pounds per cubic foot
PG&E	Pacific Gas and Electric
PE	Professional Engineer
PG	Professional Geologist
PLLW	Presidio lower low water
Presidio	Presidio of San Francisco
PSEC	Pacific States Environmental Contractors, Inc.
PTMP	Presidio Trust Management Plan
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAP	Remedial Action Plan
RCP	reinforced concrete pipe
RCRA	Resource Conservation and Recovery Act

Redwood Grove	cluster of redwood trees located in the eastern portion of FS 6A
RGH	RGH Geotechnical and Environmental Consultants
RL	reporting limits
RPD	relative percent difference
RWQCB	Regional Water Quality Control Board
SFPUC	San Francisco Public Utilities Commission
Site	Fill Site 6A
SVOC	semi-volatile organic compound
TCLP	Toxic Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
TPHd	TPH as diesel
TPHfo	TPH as fuel oil
TPHg	TPH as gasoline
Trust	Presidio Trust
UCL	upper confidence limit
UJ	qualified as estimated
USCS	Unified Soil Classification System
USEPA	U.S. Environmental Protection Agency
USA	Underground Services Alert
VMP	Vegetation Management Plan
VOC	volatile organic compound
VRAP	Vegetation/Re-vegetation Action Plan
Watershed	Watershed Science

EXECUTIVE SUMMARY

This Construction Completion Report was prepared to document the implementation of the selected alternative for remediation of Fill Site 6A (FS 6A; Site) as proposed in the *Remedial Action Plan for Fill Site 6A and Baker Beach Disturbed Areas 3 and 4*, dated March 2004 and prepared by Treadwell and Rollo (RAP); and to meet certification requirements for construction quality assurance. The RAP selected alternative consisted of excavation and removal of polychlorinated biphenyl (PCB)- and metal-contaminated fill soils and debris within the FS 6A boundaries ("clean closure"); segregation of uncontaminated soil and inert construction debris for recycling as practicable; and offsite disposal of contaminated soils and debris at permitted waste management facilities. Planned restoration activities included creating an open channel in place of an underground 72-inch diameter storm drain and restoring the area to a riparian habitat in the western portion of the Site.

Remedial activities were completed at FS 6A between May 24 and September 21, 2005 and the final post-grade survey was conducted in January 2006. Work was generally performed under the requirements of the Construction Documents, Clean Closure Work Plan, RAP, and the Petroleum Contingency Plan with minor deviations as discussed in this report. Approximately 77,657 tons of fill were removed within the limits defined by the FS 6A boundaries (about 74,014 tons were disposed at a permitted-Class III landfill, and about 3,643 tons were disposed at a permitted-Class I landfill).

During RAP implementation, a Landscape Zone was created in the eastern half of the Site (cleaned to ecological buffer zone cleanup levels) and a Native Plant Zone was created in the western half of the Site (cleaned to ecological special species cleanup levels). Both zones were cleaned to the most protective cleanup levels for human health (e.g., residential).

There were a few areas where it was not possible to over-excavate all of the fill material without endangering the integrity of onsite and nearby resources. A segment of storm drain was left in place to protect an historic building foundation along the perimeter of the Site, and a portion the former nurses'

quarters building foundation was left in place to protect an active utility corridor and nearby roadway (Girard Road). A Redwood Grove and underlying fill soil located in the center of the Site were protected during excavation because the trees in the grove were part of the planned Site restoration. For these areas, the Trust proposes to implement land use restrictions to notify present or future owners and tenants at the Site of these Site conditions.

Confirmation sample analytical results meet clean closure criteria for tested organic compounds and for 13 of 15 tested inorganic compounds. Only selenium and cadmium did not meet the criteria for clean closure (cadmium was a potential constituent of concern in the RAP). Neither selenium nor cadmium concentrations left in place are believed to be from contamination left in place. A comparison of Site data to the background data suggests that selenium is not statistically different from background. The narrow range of cadmium exceedances above the cleanup level, statistical analyses of cadmium exceedances that show a normal distribution with a small standard deviation, and no cadmium exceedance spatial trend horizontally or vertically for samples collected from native material suggest that cadmium in soil at FS 6A does not represent contamination. Rather, the cadmium concentrations likely represent Site-specific background conditions.

In closing, with proposed land use restrictions implemented to address the issues described above, the selected RAP alternative has been successfully implemented such that the Site is protective of human health and the environment for the planned future land uses.

1.0 INTRODUCTION

On behalf of the Presidio Trust (Trust), MACTEC Engineering and Consulting, Inc. (MACTEC) has prepared this Construction Completion Report to describe implementation of the recommended remedial alternative for Fill Site 6A (FS 6A; Site) at the Presidio of San Francisco (Presidio), California; and to meet certification requirements for construction quality assurance (CQA).

The purpose of the remedial activities was to implement the selected remedial alternative in the Remedial Action Plan (RAP; *Treadwell and Rollo, 2004*), i.e., excavation and removal of polychlorinated biphenyl (PCB)- and metal-contaminated fill soils and debris within the FS 6A boundaries ("clean closure"), segregation of uncontaminated soil and inert construction debris for recycling as practicable, and offsite disposal of contaminated soils and debris at permitted waste management facilities. Planned restoration activities included creating an open channel in place of an underground 72-inch diameter storm drain and restoring the area to a riparian habitat in the western portion of the Site.

The Trust conducted remedial activities at FS 6A between May 24 and September 21, 2005, in accordance with *Construction Drawings and Specifications* (*MACTEC, 2004*), *Clean Closure Work Plan* (*MACTEC, 2005*), regulatory-approved RAP (*Treadwell and Rollo, 2004*), the *Petroleum Contingency Plan* (*EKI, 2004*), and the *Restoration Plan* (*Clearwater, 2005*). The finish-grade survey was performed in January 2006.

Remedial work was performed by Pacific States Environmental Contractors, Inc. (PSEC), and restoration work was performed by Watershed Science (Watershed) and Clearwater Hydrology (Clearwater), both under contract to the Trust. MACTEC served as the CQA contractor for remedial work, under direction of the Trust. Remedial activities were conducted under the regulatory oversight of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC).

1.1 Report Organization

The following provides the organization for this Construction Completion Report:

Section 1.0: Introduction – Includes the report organization, background, and purpose and approach (including selection of remedial alternative and applicable cleanup levels); project personnel and responsibilities during implementation of the remedial alternative.

Section 2.0: Includes details regarding pre-remedial, remedial, and post-remedial action activities performed in the field.

Section 3.0: Describes the laboratory analyses and data validation for soil and water samples collected.

Section 4.0: Presents the final Site conditions, including an evaluation of confirmation samples with respect to meeting clean closure criteria, and describes deviations from design plans.

Section 5.0: Presents conclusions and recommendations for land use controls in areas that did not meet clean closure criteria.

Section 6.0: CQA certification

Section 7.0: References

1.2 Background

The following sections describe the Site, past use, geology and hydrogeology, results of previous investigations, and summarize the selected and implemented remedial alternative.

1.2.1 Site Description and Past Site Use

FS 6A is located at the northeast corner of the Main Post area, northwest of the former Letterman Complex (Figure 1), and has been part of the developed portion of the Presidio since the early 20th century. The Site is generally bounded by Lincoln Boulevard to the south, Building 1030 to the north, Building 222 parking lot to the west and Girard Road to the east.

FS 6 was split into two sites, FS 6A and Fill Site 6B (FS 6B; Figure 1) based on availability of data associated with the Building 1065 Area (located northeast of FS 6A) and Building 207/231 Area (located north of FS 6A). FS 6B is currently undergoing an investigation to assess its site boundaries.

FS 6A proposed Site boundaries (horizontal excavation limits) were based on surface features that include Lincoln Boulevard and historic cobble retaining wall to the south, Girard Avenue to the east, the historic buildings just east of Halleck Street, and a perimeter sidewalk around occupied buildings 1029 and 1030 to the north. These boundaries represented the proposed maximum area for remediation. The RAP addressed the concern that implementation of the remedial alternative for FS 6A might result in soil along the perimeter remaining in place even where COC concentrations exceed cleanup levels. Where FS 6A/6B perimeter areas exceed cleanup levels, they will be evaluated and addressed by a FS 6B RAP currently in preparation.

The Site is approximately 2.5 acres with dimensions of approximately 450 feet (in the north-south direction) and 280 feet (in the west-east direction). Prior to recent excavation activities, the Site was an open grassy field with a cluster of redwood trees located in the eastern portion of the Site (also known as the "Redwood Grove"). Ground surface elevations prior to excavation ranged from approximately 40 feet North American Vertical Datum of 1988 (NAVD88) at the south end of the Site (adjacent to Lincoln Boulevard) to about 20 feet NAVD88 at the north end of the Site (west of Building 1030). Figure 2 shows pre-construction site elevations.

Several above- and under-ground utilities, both in-service and abandoned, transected the Site. A 72-inch diameter reinforced concrete pipe (RCP) storm drain crossed the Site from south to north. The Army installed the 72-inch RCP prior to the 1940s as a way to contain the Tennessee Hollow drainage that previously flowed across the Site toward Crissy Field Marsh (Crissy Marsh).

Figure 2 illustrates the preconstruction site features, and Figure 3 illustrates the approximate locations of structures, basements, and foundations encountered during remediation. Historic features in close

proximity to the Site include Buildings 222, 223, 225, and 226 along Halleck Street, and a stone retaining wall that parallels and borders Lincoln Boulevard. Non-historic residential Building 1030 is located along the Site northern border. The Site formerly contained two railroad spurs and two warehouses as well as the nurses' quarters along Girard Road. The Army demolished the warehouses sometime after the 1960s and partially demolished the nurses' quarters in the 1980s, leaving the basement foundation structure in place covered with soil. The railroad spurs were not found during remedial construction activities.

1.2.2 Site Geology and Hydrology

The following briefly summarizes Site conditions and hydrogeology.

The pre-remediation Site elevation ranged between 19 and 42 feet (NAVD88). The topography was a mounded area with 5% average slopes across the crest near the middle of the Site and up to 50% slopes along the perimeter of the Site. The Site was covered with grass and small shrubs, with the Redwood Grove in the center area of the Site (Figure 2).

Investigations performed by the Army in the 1990s documented that fill extended at least 15 feet in thickness over unconsolidated sediments of the Colma Formation (Colma) (*Treadwell and Rollo, 2004*).

Groundwater within the Site is generally between elevation 13 feet Presidio Lower Low Water (PLLW) to the north near Building 225 and 17 feet (PLLW) to the south near Lincoln Blvd. Accounting for annual and seasonal fluctuations and Site-wide variations, groundwater may be encountered within a range of 6 to 22 feet below the former ground surface (*Treadwell & Rollo, 2004*). Shallow perched groundwater has been encountered during previous investigations (*EKI, 2001 and 2002*). Past and on-going quarterly groundwater monitoring at FS 6A has not indicated any significant impacts to groundwater quality as assessed in the RAP (*Treadwell & Rollo, 2004*). One groundwater monitoring well was located in the FS 6A area (Well LF6GW102; Figure 2).

1.2.3 Previous Investigations of Fill Material and Groundwater

The RAP included results of previous Site characterization investigations (*Treadwell & Rollo, 2004*) as summarized below.

During February 2001, the Trust excavated five test pits (LF6TP100, LF6TP101, and LF6TP103 to105; Figure 2) at FS 6A to investigate the nature and depth of fill. Fill encountered was primarily soil with minor debris (mostly concrete rubble).

Chemicals detected in fill soil above cleanup levels included metals (mercury, cadmium, and zinc) and PCB component Aroclor 1260 (PCB 1260). Cadmium and zinc concentrations appeared to be indistinguishable from ambient (background) concentrations (*Treadwell & Rollo, 2004*). Soil cleanup levels selected for FS 6A were Ecological Special Status Species Zone (ESSSZ) levels, which are generally the most stringent cleanup levels used at the Presidio. PCB 1260 was detected during previous sampling above the ESSSZ cleanup level at three locations and mercury was detected above the cleanup level at one location.

Selenium and zinc concentrations exceeded cleanup levels for groundwater in previous sampling events *(Treadwell & Rollo, 2004)*. However, the exceedance of selenium was believed to be an artifact of sampling, and the exceedance of the zinc may have resulted from inadequate filtering of samples prior to analysis (*Treadwell & Rollo, 2004*).

1.2.4 Purpose and Approach

The primary purpose of this project was to remove impacted materials and debris within the FS 6A boundary to achieve the proposed Presidio-specific cleanup levels specified in the RAP (*Treadwell & Rollo, 2004)*.

Previous investigations indicated that fill materials at the Site consisted largely of soil and minor amounts of construction debris from the demolition of various buildings, which formerly occupied the area. Based

on results of limited Site characterization data, minor quantities of soil slightly contaminated with PCBs and mercury were interpreted to be present and these constituents were identified as constituents of concern (COCs). Excavation and offsite disposal of debris and contaminated soil was the remedy selected to achieve the cleanup levels for this Site in the RAP (*Treadwell & Rollo, 2004*).

1.2.5 Summary of the Selected Remedial Alternative

The remedial action recommended for FS 6A, referred to as “Alternative 5” in the RAP, and implemented as part of this project consisted of (a) excavation and removal of PCB- and metal-impacted fill soils and debris within FS 6A (“clean closure”); (b) segregation of uncontaminated soil and inert construction debris for recycling as practicable; (c) confirmation soil sampling for soil chemicals COCs to confirm that applicable soil cleanup levels have been achieved; (d) off-site disposal of contaminated soils and debris at a permitted waste management facility; and (e) three years of post-clean-closure ground water monitoring. As part of the implementation of this remedy, subsurface utilities would be re-routed or removed and the existing storm sewer system removed. The estimated volume of debris intermixed with minor amounts of PCB-impacted soil as presented in the RAP was approximately 33,000 cubic yards.

After removal of the impacted material and debris, planned Site restoration included construction of a 430-foot long open channel that replaced the below-grade 72-inch storm drain, and re-vegetation with riparian native and ornamental plants.

1.2.6 Applicable Cleanup Levels

The purpose of the remedial action was to remove impacted materials and debris to achieve the proposed cleanup based on planned Site re-use. The RAP proposed the most stringent cleanup levels (ecological special status and human health residential) to allow for a full range of future land uses to be considered because planned re-use had not been finalized at the time the RAP was prepared. These proposed cleanup levels were based on the *Development of Presidio-wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water* (Cleanup Level Document; *EKI, 2002*). Planned re-use, as described in the *Presidio*

Trust Management Plan (PTMP; *Trust 2002*) proposed residential development in the area and restoration of a portion of the Site to native habitat as part of restoration of the Tennessee Hollow Riparian Corridor.

As design Construction Documents *(MACTEC, 2004)* and the Restoration Plan (*Clearwater, 2005*) developed, instead of creating a native plant zone cut diagonally across the Site per the PTMP, the orientation of the storm drain pipe facilitated the Site to be restored in western and eastern portions. The western portion of the Site was planned as a riparian native plant habitat that contained an open water channel. Planned restoration in the eastern half of the Site was landscape re-vegetation with a trail and open area for recreation. A Redwood Grove located in the center of the Site was planned for protection because the redwood trees were to be part of the Site restoration in the Landscape Zone.

During remediation, the Trust applied the appropriate cleanup levels established in the Cleanup Level Document to the proposed planned re-use, i.e., evaluating residual COC concentrations in the western portion of the Site only (the Native Plant Zone) against the lowest of residential, special status cleanup levels, and background (based on Colma Formation soils). Residual COC concentrations in the eastern portion of the Site (the Landscape Zone) against the lowest of residential, eco-buffer, and background (based on Colma Formation soils) cleanup levels (Table 1).

As described in the RAP, compliance with cleanup levels in soil was achieved when either all soil confirmation sample results, or the 95 percent upper confidence limit (UCL) on the arithmetic mean of the sample data set are less than the applicable cleanup goal.

1.3 Project Personnel, Responsibilities, and Chronology

This section describes the project personnel, their responsibilities, and a general chronology of remedial and restoration activities that were performed.

1.3.1 Project Personnel

Presidio Trust – Owner

Trust Project Manager: Ryan Seelbach
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MACTEC Engineering and Consulting, Inc. – (Engineer – Remediation Design and Quality Assurance Oversight)

Design Project Manager: Michael Jacobvitz, P.G.
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Lead Design Engineer and CQA Officer: James P. Henderson, P.E.
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CQA Monitor: Anna Henke, P.G.
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Pacific States Environmental Contractors, Inc. – Contractor (Remediation Construction)

Site Superintendent: Keith Wayne
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(925) 803-4333

Watershed Science – Contractor (Restoration Construction)

Steve Zembsch
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(831) 726-1499

Clearwater Hydrology – Contractor (Restoration Design)

Bill Vandivere, P.E.
2974 Adeline St.
Berkeley, California 94703
(510) 841-1836

1.3.2 Project Personnel Responsibilities

The Trust Project Manager oversaw day-to-day operations; represented the Trust at field and regulatory meetings; coordinated with NPS; verified that the construction contractors met contract requirements; compiled, reviewed and signed manifests and bills-of-lading; coordinated traffic with tenants, visitors, and residents; coordinated restoration activities; and reviewed and approved design and contractor submittals.

The Design Engineer Project Manager assured that field work met program-specific quality objectives; tracked the remediation schedule; collected and submitted confirmation samples for laboratory analyses; compiled laboratory data into tables for evaluation during and post-construction; attended on-Site meetings; verified that removal actions were consistent with design documents; installed monitoring wells; and prepared the construction completion report to meet CQA certification requirements.

The Contractor Site Superintendent documented that the work progressed on schedule; supervised construction subcontractor staff; attended meetings; interfaced with the Trust and Design Engineer Project Managers; documented work performed; and maintained disposal manifests and bills of lading files.

2.0 PRE-REMEDIAL, REMEDIAL, AND POST-REMEDIAL ACTION FIELD ACTIVITIES

This section includes details on the pre-remedial, remedial, and post-remedial (restoration) action activities performed between May 2003 and January 2006 that were generally performed in accordance with the Construction Drawings and Specifications *(MACTEC, 2004)*, Clean Closure Work Plan (*MACTEC, 2005a)*, and RAP *(Treadwell and Rollo, 2004)*.

The Trust planned to perform the remediation and restoration in two consecutive phases. However, some restoration activities along the western portion of the Site (stream construction, import of backfill and final grading by the restoration contractor) were performed during the latter part of remedial activities (beginning in August 2005) along the eastern portion of the Site in order to complete grading and planting activities prior to the start of the rainy season. Restoration activities were performed only in areas after confirmation sampling analytical results were evaluated and it was determined that cleanup levels were met. The following describes the pre-remedial, remedial, and post-remedial action sequence of activities.

Pre-remedial activities (Section 2.1), conducted from May 2003 to May 2005, included:

- Pre-excavation survey (Section 2.1.1)
- Utility location, abandonment and relocation (Section 2.1.2)
- Well abandonment (Section 2.1.3)
- Remedial activities mobilization (Section 2.1.4).

Remedial soil and debris excavation activities (Section 2.2), conducted between May 24 and September 23, 2005, included:

- Soil excavation and debris removal (Section 2.2.1)

- Confirmation soil sampling (Section 2.2.2)
- Demolition and removal of foundations and other features (Section 2.2.3)
- Storm drain diversion, sampling, and disposal (Section 2.2.4)
- Soil profiling and disposal (Section 2.2.5)
- Remediation contractor demobilization (Section 2.2.6).

Site restoration activities (Section 2.3), conducted in August through winter 2006, included:

- Import of backfill (Section 2.3.1)
- Compaction and grading (Section 2.3.2)
- Monitoring Well installation (Section 2.3.3)
- Finish grade survey (Section 2.3.4).

Appendix A documents the sequence of work performed. The sections below further describe these activities.

2.1 Pre-Remedial Activities

2.1.1 Pre-Excavation Survey

On May 16, 2003, a pre-design survey was performed by Chaudhary and Associates, Napa, California (Chaudhary), under subcontract to MACTEC. The mapping prepared for this survey was included with the Construction Drawings *(MACTEC, 2004)* and topographic mapping is included as Figure 2. Survey control points established along the perimeter of the project area for use during and after construction are listed on Construction Drawing C-102 (*MACTEC, 2004)*. Preconstruction survey staking was performed by the Contractor's surveyor (Worldwide Land Surveys and Civil Engineering, Pacheco, California).

2.1.2 Utility Location, Abandonment and Relocation of Underground Utilities

In winter 2004, surveys and utility location records were reviewed. MACTEC used existing Trust utility maps to illustrate the existing utility lines on the construction drawings *(MACTEC, 2004)*. The Trust Project Manager submitted an excavation permit to the Trust Utility Department and notified Underground Services Alert (USA) prior to the start of excavation. Private utility companies (e.g., Pacific Gas & Electric [PG&E]) in collaboration with the Trust Utility Department identified and field marked subsurface utilities.

CQA oversight of pre-remedial activities was performed by MACTEC's subcontractor, Chow Engineering, Oakland, California. During winter 2004/2005, PSEC abandoned and relocated utilities that included water, sanitary sewer, storm sewer, and electrical conduits. Utility trench spoils were stockpiled within the remedial excavation area for future offsite disposal. The utility work was generally constructed as illustrated on the Construction Drawings (C-001, C-101, and C-102) in *MACTEC, 2004* with minor design modifications performed under the direction of Jim Kelly, Presidio Trust Utilities Manager, and MACTEC's Design Engineer. Modifications were necessary during field work to adjust utility alignments, modify pipe sizes to form appropriate connections, and to avoid interference with other utilities and obstructions.

2.1.3 Well Abandonment

On May 11, 2005, under subcontract to MACTEC, Gregg Drilling, Martinez, California, over-drilled Well LF6GW102 (Figure 2) using eight-inch diameter augers and removed the entire well casing, annular seal, and sand filter pack material to a depth of 34 feet below ground surface (ft bgs). Upon completion of removal of the casing, the well borehole was grouted to the surface using about 100 gallons of lean cement/bentonite grout that was pumped through a tremie pipe from the bottom of the borehole until the grout filled the borehole. The tremie pipe was removed as the borehole was topped with grout. Soil

cuttings were stockpiled for offsite disposal with soils excavated during remediation activities as discussed in Section 2.2.1.

2.1.4 Remedial Activities Mobilization

On May 23, 2005, mobilization for remedial activities and included:

- Erecting temporary chain link fencing;
- Delivery of a Connex Box for storage of onsite construction equipment;
- Delivery of sandbags and polyethylene sheeting for the stockpile staging area; and
- Delivery of heavy equipment including CAT 345B and 330 excavators, a Takeuchi mini excavator, and a 436C backhoe.

2.2 Remedial Activities

Between May 24 and September 21, 2005, excavation activities were performed, starting at the western portion of the Site and continuing easterly as described below.

2.2.1 Soil and Debris Removal

Soil and debris were generally excavated to the proposed grades illustrated on Construction Drawing C-102 unless native soils were encountered at shallower depths than shown on the drawing, or in some cases if additional debris or visibly contaminated soil was encountered below the designed grades. The excavation work was performed using a CAT 345B and 330 excavators, a Takeuchi mini excavator, a 436C backhoe, and a CAT D6R bulldozer. An air compressor was used to clean soil off the upper eight feet of the historic rock wall. Support equipment included a 435 Air sweeper (street sweeper) and a water truck for dust suppression.

Stockpile areas were staged along access routes throughout the Site to facilitate truck loading for off site soil disposal. Soil was transferred from the excavation area to the stockpile areas using excavators and bulldozers to allow concurrent excavation and loading activities.

2.2.2 Soil Sampling

Figure 4 includes general boundaries between native and fill materials (post-excavation and pre-remediation). Figure 5 includes the approximate distribution of material types and structures (post-excavation and pre-restoration) and locations of confirmation samples. Table 2 includes the sampling program summary.

Material types mapped on Figure 5 include:

- Fill Material (with no debris): Dark brown poorly graded sand, a dark olive well graded sand with gravel, or a dark brown to a dark yellowish brown sandy lean clay.
- Fill material (with debris): Brown silty sand or clayey sand and gravel with minor amounts of concrete pieces, debris, and wood fragments.
- Native Colma Formation clay: Yellowish brown sandy clay with red and black oxidation flakes.
- Native Colma Formation sand: Dark yellowish brown silty sand or dark yellowish brown clayey and silty sand.

The fill/native soil interface was distinguishable due to the distinct color difference. Fill was generally a dark brown or olive color; native material was generally a yellowish brown color.

Upon reaching proposed grades or after removal of debris and/or visibly contaminated soil, confirmation sampling was performed at the perimeter and bottom of the excavation based on a pre-established 75-foot grid as proposed in the RAP. The final layout of the sampling grid was developed and distributed to stakeholders prior to sampling. Confirmation samples were analyzed on a 24 or 48-hour turnaround and included analysis of all samples for PCBs and Title 22 metals. Ten percent of the samples were also analyzed for herbicides, pesticides, total petroleum hydrocarbons (TPH) as fuel oil (fo), TPH as diesel (d), semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs). In addition, as

required by the RAP, samples collected beneath building foundations were analyzed for pesticides at a frequency of one sample for every 75 linear feet of building foundation.

2.2.2.1 Confirmation Soil Sampling Methods, Locations, and Results

Confirmation soil samples were collected by advancing a clean 6-inch long stainless steel tube directly into the soil in the excavation sidewall or floor. In some cases, the soil was soft enough to push the tube directly into the soil by hand. Where the soil was firmer, a clean stainless steel plate was held against the end of the tube, which was hammered into the soil. The ends of the tubes were capped with Teflon squares and plastic caps, the tubes were labeled, and then stored in an ice chest with ice. Soil samples were transported to Curtis and Tompkins Laboratory, Berkeley, California (Curtis and Tompkins), and the middle section of each tube was analyzed for PCBs and Title 22 metals. In addition, ten percent of samples were also analyzed for VOCs, SVOCs, pesticides, chlorinated herbicides, TPHd, and TPHfo.

In the Native Plant Zone, 39 samples were collected which included four locations that were over-excavated. In the Landscape Zone, 28 samples were collected which included four locations that were over-excavated.

A list of laboratory qualifiers is presented in Table 3. Confirmation soil sample results are presented in Tables 4 through 7, exceedances are illustrated on Figure 6, placement of imported backfill soil is illustrated on Figure 7, and evaluation of results are presented in Section 4.0. Laboratory analytical reports are included in Appendix B. The divide between the Landscape and Native Plant Zones is illustrated on Figure 8. Samples collected in the Landscape and Native Plant Zones were compared to cleanup levels presented in Table 1 for the respective zone.

The Trust's QAPP nomenclature for soil sample identification lists the Site (LF6 for LF 6A), the type of sample (EX for excavation), the sample number, and the depth collected below the original pre-excavation ground surface. For each sample, Table 2 also presents the sample depth from the final

excavation grade. For example, Table 2 indicates that sample LF6EX128(25.0) was collected 25 feet below the original ground surface and 1.5 to 2.0 feet below the final excavation grade.

2.2.2.2 Over-excavation Activities

Upon receipt of confirmation results, data tables were prepared, and the results were evaluated and discussed during scheduled meetings held on an as-needed basis during remedial excavation activities based on project requirements and availability of meeting attendees. Stakeholders including the DTSC, RWQCB and NPS were invited and attended these meetings.

Over-excavated areas were performed at the request of DTSC during scheduled meetings, or at the direction of the Trust based upon evaluation of confirmation sampling data. Table 8 summarizes the location of each over-excavated area, analytes exceedances, over-excavation size, confirmation sampling, and notes regarding the rationale for over-excavating each area. Table 8 does not include information regarding the FDS pipeline excavation (presented in Section 2.2.3.5 and Appendix C) or over-excavation of areas with building foundations (presented in Section 2.2.3).

There were two perimeter areas where PCBs were detected above cleanup action levels that were over-excavated (LF6EX108 and 147). It should be noted that the over-excavated concentrations were well below recreational cleanup levels and the Site is now planned for recreational re-use:

- <u>LF6EX108 (Native Plant Zone)</u>: Aroclor 1254 was detected at 0.260 mg/kg and total PCBs were 0.305 mg/kg, exceeding the ecological special status and residential cleanup level of 0.033 and residential cleanup level of 0.16 mg/kg. Both Aroclor 1254 and total PCBs were below the recreational cleanup level of 0.39 mg/kg.

- <u>LF6EX147 (Landscape Zone):</u> Total PCBs were 0.177 mg/kg, marginally exceeding the residential cleanup level of 0.16 mg/kg, but below the ecological buffer cleanup level of 0.23 mg/kg and recreational cleanup level of 0.39 mg/kg.

At both locations, bottom confirmation samples showed that showed PCB concentrations were below cleanup action levels though insufficient lateral confirmation sampling was performed to confirm that the elevated PCB concentrations did not extend beyond the over-excavated areas. Both areas are along the Site perimeter where land use restrictions are proposed (Section 5.0).

2.2.2.3 Composite Soil Sampling

Composite samples were collected to profile backfill and/or stockpile materials. The method the Trust used (referred herein as the “Trust composite procedure”) to collect composite samples was to remove a minimum of 1 foot of surface material from each composite sample location in the stockpile and collect four discrete grab samples in glass jars, and append the sample identification with an “-A, -B, -C, and –D”. The grab samples were submitted to the laboratory and the laboratory composited the four samples and analyzed a representative sample of the composite. The method MACTEC used (referred herein as the “MACTEC composite procedure”) to collect composite samples was to remove a minimum of 1 foot of surface material from each composite sample location in the stockpile and collect four discrete grab samples in four Ziploc bags, mix the four samples in one Ziploc bag, and submit the mixed sample to the laboratory for analysis.

2.2.3 Demolition and Removal of Foundations and Other Features

2.2.3.1 Foundation Concrete Removal

Between June 7 and August 24, 2005, concrete encountered during excavation was demolished and removed using an excavator. Large concrete sections were staged in stockpiles separate from excavated soil. Concrete removal included large pieces from the utility relocation work, as well as several abandoned foundations and basement walls uncovered at the Site (Figure 3). Approximately 206 tons of concrete debris was disposed at two concrete recyclers, Inner City, Oakland, California and Dutra Materials, Richmond, California.

2.2.3.2 72-inch Diameter Storm Drain Removal

After fill above the storm drain had been excavated, the 72-inch storm drain located in the western portion of the Site (Figure 3) was removed in accordance with Construction Documents *(MACTEC, 2004)*.

Removal of the fill material overlying the storm drain revealed that the storm drain had been installed in native Colma Formation soils. PSEC excavated sandy soil above the storm drain pipe and placed the sandy soil in two stockpiles along the storm drain trench for possible re-use as trench backfill material. These stockpiles were characterized using the MACTEC composite procedure at the rate of one sample per 175 cubic yards of soil (samples LF6SP100 and 101).

Soil encountered above the pipe opposite Building 222 exhibited signs of petroleum hydrocarbon staining and odors. These impacted soils were excavated and removed prior to removal of the storm drain. Subsequent confirmation samples were collected below the storm drain in the sand material (sample numbers LF6EX120 and 127) in the vicinity of the encountered petroleum hydrocarbon stained soil. Petroleum hydrocarbons were not detected at concentrations above cleanup levels in sample LF6EX120, the only one of the two samples to be analyzed for petroleum hydrocarbon constituents.

After the storm drain pipe was exposed, water flowing through the storm drain was diverted through a 6-inch PVC pipe across the Site and back into the downgradient storm drain. PSEC then removed and transported each section to a staging area for demolition and stockpiling prior to off-hauling as concrete debris to the recycling facilities mentioned in Section 2.2.3.1. A 72-foot section of the storm drain was left in place to protect a nearby historic building foundation (Section 2.2.3.6).

Trenching of material below the storm drain pipe revealed a sand layer bed directly below the pipe, and a gravel layer approximately 2 feet thick below the sand (containing ¾- to 1-inch gravel). Samples were collected at approximately 75-foot intervals along the pipe in the underlying sand directly beneath the

pipe, except at locations LF6EX122 and 124 where material was excavated below the gravel and samples were collected in native Colma Formation soil.

After the storm drain pipe was removed, groundwater rapidly filled the storm drain trench, apparently from the permeable gravel backfill layer. To cutoff the flow of groundwater entering and exiting the Site through this gravel layer, two areas on the north and south ends of the trench were over-excavated (shown on Figure 8). Cutoff trenches were dug two feet deep by two feet wide at these locations and were filled with lower permeable sand to stem the flow of groundwater through the gravel layer across the Site. In addition, to bridge groundwater filling the trench, approximately 800 cubic yards of sand imported from the California Academy of Sciences (Section 2.3.1.2) was placed along the length of the storm drain excavation trench. The sand from the two clean stockpiles of material excavated from above the pipe (350 cubic yards as described above) was then placed over the 800 cubic yards of placed backfill sand.

2.2.3.3 Utilities Encountered During Remediation

During remedial activities, underground utilities were encountered that included polyvinyl chloride (PVC), clay, and concrete storm drains and sanitary sewer lines, overhead and underground electrical lines, water lines, and abandoned steam lines. PSEC or MACTEC notified the Trust as utilities were encountered and work stopped until the Trust authorized removal or protection of the lines. Lines located within the limits of the proposed soil removal (remediation) area were protected, relocated, or removed. The removed lines were plugged with grout below the surface of where they day-lighted. Active lines were re-routed around the area being excavated prior to the remedial effort.

2.2.3.4 Transformer Removal

During excavation activities, a pole-mounted transformer was removed from the power pole (Figure 3) and placed onsite for disposal. Based on the age of the transformer (oil containing transformers manufactured prior to July 2, 1979), according to 40 CFR § 761.2 it must be assumed that mineral oil-filled electrical equipment whose PCB concentration is not established is PCB-contaminated electrical

equipment. The transformer oil was placed into a 55-gallon drum for disposal at a permitted recycler. On July 20, 2005, the drum was transported to DeMenno-Kerdoon, Compton, California. DeMenno-Kerdoon is permitted to receive waste oil contaminated with PCBs. A copy of the manifest is in Appendix E.

2.2.3.5 FDS Line Removal

On July 6, 2005, a section of FDS pipeline and fuel-oil-impacted soil were discovered near Girard Road (Figure 3) during demolition and removal of the foundations associated with the former nurses' quarters. Based on an on-site meeting on July 6, 2005 and subsequent notice and follow up with the Regional Water Quality Control Board (RWQCB) on July 8, stakeholder parties concurred that fuel-contaminated soils associated with the FDS line would be sampled in accordance with the Petroleum Contingency Plan (*EKI, 2004*). Approximately 55 cubic yards of stained soil was excavated. Following removal of the visibly impacted soil, one sample was collected at the deepest part of the excavation (approximately 10 to 12 feet below the basement floor of former building), and four sidewall samples were collected (one per 25 feet of sidewall). Samples were analyzed for TPHd, TPHfo, and polynuclear aromatic hydrocarbons (PAHs). Petroleum hydrocarbons were not detected in any of the excavation confirmation samples.

The RWQCB was notified of the discovery of the FDS line via a telephone call and subsequent e-mail dated July 8, 2005 (a copy of the e-mail is included in Appendix F). As documented in the email, it was proposed that because the petroleum contingency site was discovered during a remedial action performed under CERCLA authority, no separate Contingency Site Cleanup Report will be prepared; instead, a removal report documenting the FDS activities would be prepared as an appendix to the Completion Report. The FDS Pipeline Removal Report is included as Appendix C.

2.2.3.6 Debris and Structures Left in Place

Some debris, structural components, fill material, and abandoned utilities were left in place to protect nearby resources (utility corridor, roadway foundation, and historic building foundation) and the Redwood Grove.

Former Nurses' Quarters – Building Walls/Basements near Girard Road

The former nurses' quarters were demolished by the Army in 1987, and the buildings were removed to below grade elevation of Girard Road. The design presumed that the nurses' quarters were slab on grade design and accordingly the basement walls, foundations, and fill material were not anticipated. Basements located in the southeast corner of the Site had earthen floors and rested on native soils, while some foundations were encountered in the basements located east of the Redwood Grove. As part of the remedial activities, the remaining buried structures were initially demolished to finish grade. A four-point composite stockpile sample (LF6SP103) was collected using MACTEC composite procedure to characterize the concrete rubble and fill soil near the final grade, and concentrations of lead (520 mg/kg) and zinc (240 mg/kg) were above cleanup levels. These materials were disposed offsite at a Class I landfill. Portions of the walls and basement foundations were not removed due to their close proximity to Girard Road and the high pressure water line that parallels the edge of the road.

Redwood Grove Soil

Although not part of the RAP, post-RAP restoration plans specified protection of the Redwood Grove in the center of the Site. Prior to construction activities, a site walk was conducted with Peter Erlich, the Trust Forester, to delineate the area of redwood trees to be protected during construction. Soil removal in this area was performed under the supervision of Peter Erlich. Adjacent to the Redwood Grove, fill was excavated to native material at a depth below indicated in the construction drawings; however, some material was left in place to protect the trees' root systems.

The top layer of the material left in place was characterized as topsoil/duff and was sampled on July 17, 2005. A four-point composite of the top soil/duff was collected just east of the redwoods (LF6SP104 using the MACTEC composite procedure and analyzed for metals and PCBs. Results of the sampling detected arsenic (11 mg/kg), selenium (1.9 mg/kg) and zinc (240 mg/kg) above their respective Native Plant Zone cleanup goals. Soil in this area was subsequently covered with geotextile landscape fabric. Additional fill samples (LF6EX130, 131, 132, and 133) were also collected from the western sidewalls of

the Redwood Grove island, below the topsoil/duff layer. Results of samples LF6EX130 through 132 are presented in Tables 6 and 7, and results for sample LF6EX133 are presented in Tables 4 and 5.

Storm Drain Segment Left in Place near Historic Building 225

As described in Section 2.2.3.2, all but six, 12-foot long sections of the 72-inch diameter storm drain were removed, crushed with the excavator, and recycled off-site. However, during its removal, the storm drain was found to be located approximately eight feet farther west and slightly deeper than anticipated. During an on-site visit by stakeholders on June, 29, 2005, and observations by Trust remediation and resource representatives on June 30, 2005, concerns were raised that this 72-foot long segment of storm drain was situated too close to Building 225 (an historic building protected under National Historic Preservation Act [NHPA]) to allow safe removal of the storm drain without installation of protective shoring and/or tiebacks and geotechnical analysis. DTSC and the Trust agreed that this pipe section would be left in place in accordance with conditions detailed the Trust’s letter to DTSC dated July 15, 2005 (letter is included in Appendix F). Abandonment procedures outlined in the letter were implemented as follows in accordance with the letter requirements:

- The pipe exterior was cleaned of contaminated soil. Observations during field activities did not identify any sediment inside the pipe.
- The void space inside the abandoned pipe was filled with a low-density concrete grout on August 23 so that it would not act as a conduit.
- Two soil samples were collected from fill near each end of the pipe (Samples LF6EX125 and -126; Figure 5).
- The location of the abandoned pipe was surveyed by Worldwide Land Surveys and Civil Engineering, Inc.

2.2.4 Water Diversion, Sampling, and Disposal

Before the 72-inch storm drain pipe was removed, water within the pipe was diverted in accordance with the Storm Drain Relocation Plan prepared by PSEC and approved by the Trust. The Trust facilitated communication and coordination between PSEC and the restoration consultants/contractors, Clearwater and Watershed, during the stream diversion activities. The diversion structures were installed inside the pipe to catch storm drain flow at the upstream end of the project and convey it in a six-inch PVC pipe across the Site for discharge into the remaining portion of the 72-inch storm drain.

Water entering the excavation during remedial construction activities consisted of groundwater and surface water seeps from permeable areas along the perimeter of the Site. This water was diverted to a bermed sump area constructed just east of the storm drain inlet. Beginning on June 16, collected water was pumped into a high-volume baffled storage tank designed to optimize sediment retention. Prior to discharge of collected water, it was sampled as described below.

On June 24, 2005, MACTEC collected a water sample (LF6WW200; designated “Sample 1” in Trust letter to RWQCB dated July 8, 2006 [included in Appendix F]) from the storage tank to assess whether the water pumped from the excavation met the San Francisco Public Utilities Commission (SFPUC) Industrial User Class II Wastewater Permit No. 05-246 (issued on February 7, 2005, and included in Appendix D) acceptance criteria for batch wastewater discharges. The sample was collected by lowering a polyethylene bailer into the water tank through the top hatch of the storage tank. The unfiltered sample was analyzed for total metals. On the basis of this sampling (Table 9), the water contained in the tank was discharged to the sanitary sewer through a manhole located immediately north of the FS 6A area on June 28, 2005. The water was discharged from a port in the mid-portion of the storage tank to allow sediment to settle out and minimize discharge of turbid water. In total, approximately 2,740,000 gallons of water were discharged into the sanitary sewer under the Industrial Wastewater permit between June 28 and October 21, 2005.

2.2.4.1 Accidental Discharge of Impounded Water

An accidental discharge of the impounded water to the storm sewer caused by a breach in the berm (water flowed over the sand bags within the drain pipe) occurred sometime beginning between July 2 and July 3, 2005, and continued until July 5 when the impound could be re-constructed by PSEC. It was estimated that approximately 20,000 gallons of groundwater were released into Crissy Marsh.

Between July 6 and 22, 2005, post accidental release water samples were collected from the storage tank, the sump and bermed area, and from surface water and sediment within the upstream storm drain to assess potential impacts to Crissy Marsh from the accidental release. Samples LF6WW203 and LF6WW205 were collected from the storage tank; samples LF6WW201 (designated “Sample 2” in Trust letter to RWQCB dated July 8, 2006), LF6WW204, and LF6WW207 were collected directly from the sump and the bermed area; samples LF6SW202, LF6SW206, and Dup072205 were collected from surface water within the upstream storm drain (prior to it running into the diversion channel). The above water samples were field filtered prior to submitting them for analysis, except for sample LF6WW201 that was submitted unfiltered. Sample LF6SP106 was collected from sediment present just inside the exposed storm drain inlet pipe between the bermed area and sand bags (Figure 5).

The samples collected from the surface water within the upstream storm drain, the sump, and the bermed area were collected using a peristaltic pump or by directly immersing the sample bottles into the water. The sediment sample was collected by advancing a clean 6-inch long stainless steel tube directly into the sediment. Samples were analyzed for metals. In addition, selected samples (as identified in Table 3) were analyzed for TPH as gasoline (TPHg), TPHd, and TPHfo by EPA Method 8015 with EPA Method 3630A- Silica Gel Cleanup utilized for the TPHd and TPHfo analyses, cyanide, and for PCBs by EPA Method 8082. Results were reported to be non-detect for TPH, cyanide, and PCBs. Laboratory reports for these analyses are in Appendix B.

Analytical results suggest that there was no significant impact to Crissy Marsh. Total lead was detected at 8.5 µg/L in Sample LF6WW201 (unfiltered sample) which is above the groundwater cleanup level of 3.2 µg/L. However, dissolved lead collected from other water samples were below the cleanup level. The results from the July 6 sampling of upstream surface water are presented and discussed in the Trust memorandum to the RWQCB dated July 8, 2005 (included in Appendix F). Water and sediment sampling results are presented on Table 9.

In accordance with the Trust's Storm Water Pollution Prevention Plan (SWPPP), between October 26, 2005 and February 1, 2006, water quality parameters were periodically measured along segments of the open channel to document water quality of surface water flowing through the creek channel after completion of the restoration,. Measured water quality parameters included pH, electrical conductivity (EC) specific conductance (SC), temperature, and turbidity. Measurements were taken from three locations, two along the channel (upstream and downstream of the channel), and one within Crissy Marsh during each sampling event. To assess the water quality under various weather conditions, measurements were taken during periods of dry weather, storm events, and post storm events. Table 10 presents a summary of the measured water quality parameters.

2.2.4.2 Resumption of Water Flow to Storm Drain Outlet

Prior to returning the water flowing through the stream channel back into the storm drain outlet (which discharges to Crissy Marsh), samples LF6WW208, DUP101805, and LF6WW209 were collected from groundwater seeps located in the central potion of the Site just west of the new stream channel (Figure 5). These samples were collected on October 18, 2005 (using a peristaltic pump), to assess whether groundwater flowing through the Site into the stream channel met groundwater cleanup standards developed for the Site.

Analytical results were compared to Site groundwater cleanup levels (Table 1) which are based on the most stringent of the values for maintaining water quality criteria for drinking water and surface water

(*Treadwell and Rollo, 2004*). Results indicated compliance with the applicable groundwater cleanup standards (Table 9).

Based on these results, the water was released into the storm drain outlet beginning on October 21, 2005. The sand bag dam that had been left inside the storm drain pipe to decrease sediment transport was removed on October 28, 2005 following removal of the trapped sediment.

2.2.5 Soil Profiling and Disposal

Ox Mountain, the landfill disposal facility, reviewed Site characterization analytical data and collected their own samples prior to excavation to profile the waste for disposal. In addition, Ox Mountain collected additional waste samples on the first day of excavation activities.

During demolition and excavation of materials within foundation areas such as the former nurses' quarters (as described in Section 2.2.3.6), MACTEC collected additional stockpile samples to assess if waste should be disposed as Class I because of concern that there might be lead associated with lead-based paint from exterior surfaces of the former buildings. Two, four-point composite stockpile samples (LF6SP107 and LF6SP108) were collected from approximately 1,780 cubic yards (cy) and 450 cy of soil on July 15 and July 22, 2005, respectively, using the MACTEC composite procedure and were submitted to Curtis and Tompkins for metals analysis only. Analytical results for these samples are summarized on Table 10 and indicate that the material was Class I (Cal Haz) waste.

After profile results were reviewed by the Trust and approved by the disposal facility, the soil stockpiles were loaded into either aluminum-trailer end dumps (for Class I material), or into aluminum and steel-end dumps, single- and double-bottom-dumps (for Class III material). All trucks were operated by either Den Beste or PSEC, both of whom are licensed DOT-approved hazardous waste transportation contractors. According to the bills of lading, 3,643 tons of soil were transported to Waste Management Class I Landfill in Kettleman City, California, and 74,014 tons of soil were transported to Ox Mountain Class III

Landfill, Half Moon Bay, California. Table 11 includes a list of soil loads and weights disposed at the two facilities.

Appendix E includes two disks that contain digital files that document waste profiles and bills of lading. Files are organized by month and by landfill with daily summary sheets that list manifest numbers followed by each manifest and respective weight tag in a sequential order. Disk 1 contains August and September 2005 Class I shipments to Kettleman City; and May, July, August, and September 2005 Class III shipments to Ox Mountain. Disk 2 contains June 2005 Class III to Ox Mountain and DeMenno-Kerdoon, the recycler of the transformer oil.

2.2.6 Completed Excavation

Figure 8 shows the final excavation grades and re-use zones. The completed excavation dimensions were approximately 240 by 360 feet and excavation depths ranged from 1 to 28 feet below original ground surface.

2.2.7 Remediation Contractor Demobilization

In September 2005, PSEC demobilized from the Site remaining equipment and materials. Table 12 includes a weekly log of field activities prepared by MACTEC's CQA monitor.

2.3 Site Restoration

Site restoration activities began in August 2005, prior to the end of excavation activities in order to complete restoration prior to the start of the rainy season. Clearwater prepared the restoration design (*Clearwater, 2005*), and Watershed and Trust Natural Resources staff performed the restoration in collaboration with Clearwater and Trust remediation staff.

Restoration activities included construction of the drainage channel, final grading of the slopes, and placement of geotextile landscape fabric. A six-foot swath of geotextile landscape fabric was placed

along the perimeter of the Site and was also placed within the tree drip line and sidewalls around the Redwood Grove area.

Restoration activities also included installation of a French drain to address ponding of groundwater along a seepage face on the southeast area of the Native Plant Zone. A trench 1 to 6 feet deep was dug 10 to 15 feet east of the stream bank parallel to the stream for approximately 200 feet where it terminated into the bank of the stream (Figure 8). The bottom of the trench was dug to the same elevation as the stream. The soil was stockpiled next to the excavation and used to backfill the French drain trench. Gravel and perforated piping placed in the bottom of the trench collect water from the upslope seeps and have significantly reduced the seep flow.

Re-vegetation procedures utilized during restoration were performed in accordance with the Presidio Vegetation Management Plan (VMP; *Trust and NPS, 2001*), the PTMP, and a Site-specific Vegetation/Re-vegetation Action Plan (VRAP) that applies to the Native Plant Zone restoration. Re-vegetation was performed using four separate native plant communities and a landscaped plant community located in specific planting zones. The Trust Natural Resources staff and contractors re-vegetated the Site in the winter 2005/2006. Volunteers assisted with Site re-vegetation during a Trust-sponsored event at the Site held on December 3, 2005.

Watershed demobilized their equipment in late November 2005 but returned to the Site in Spring 2006 to install post and cable fence around the Site.

2.3.1 Import of Backfill

Backfilling and final grading for Site restoration required import of approximately 6,900 cubic yards of soil primarily placed in the Landscape Zone in the eastern portion of the Site. Figure 7 shows where imported backfill was placed at the Site. Figure 8 shows the final restoration areas. As described below, backfill material was obtained from two sources, the Former Letterman Hospital area within the Presidio and California Academy of Sciences in Golden Gate Park.

2.3.1.1 Former Letterman Hospital Backfill

Excavated soil from the Former Letterman Hospital area was stored in an area called the “Dust Bowl” (a stockpile staging area within the Presidio). The Trust believed this topsoil to be from Colma Formation and similar to native soils at FS 6A.

On October 20 and 21, Engineering/Resources Remediation Group, Inc. (ERRG), Concord, California, under contract to the Trust, hauled and placed approximately 3,000 cubic yards of soil stockpiled at the Dust Bowl in the Landscape Zone (Figure 7). Approximately 80 cubic yards were compacted by Watershed above the storm drain inlet location in the northwestern portion of the Site (Figure 7).

Between October 26 and November 1, the Trust collected the following three, 4-point composite samples from Dust Bowl stockpiled soil using Trust composite procedure. Sample LF6SS303 was collected from the Dust Bowl stockpile on October 26, 2005; sample LF6SS304 was collected from placed Dust Bowl stockpiled soil used as backfill within the Landscape Zone on October 26, 2005; and sample LF6SS306 was collected from placed Dust Bowl stockpiled soil used as backfill at the inlet structure on November 1, 2005. Samples were composited by Curtis and Tompkins at the laboratory and analyzed for organochlorine pesticides, TPHd/fo/g, and benzene, toluene, ethylbenzene, and xylenes (BTEX). Analytical results are included in Table 10.

Sample LF6SS303 (collected from the Dust Bowl stockpile) detected chlordane at 0.0092 mg/kg, which is marginally above the Native Plant Zone cleanup level of 0.009 mg/kg, but below the Landscape Zone cleanup level of 0.18 mg/kg. Sample LF6SS304, collected from stockpiled soil placed within the backfill at Landscape Zone, detected chlordane concentration of 0.0032 mg/kg, which is below the Landscape Zone cleanup level of 0.018 mg/kg. Analytical results from LF6SS306, collected from backfill placed within the storm drain inlet within the Native Plant Zone, detected chlordane at 0.0063 mg/kg, which is below the Native Plant Zone cleanup level of 0.009 mg/kg.

2.3.1.2 California Academy of Sciences Sand Backfill

The Trust imported approximately 3,860 cubic yards of beach dune sand from the California Academy of Sciences excavation in Golden Gate Park, San Francisco, California.

The Trust evaluated the following analytical information to assess the suitability of the backfill soil as import. On July 30, 2004, Geologica, San Francisco, California (Geologica), collected two, four-point composite samples (GA9SS-COMP501-504 and GA9SS-COMP505-508) using the Trust composite procedure under contract to the Trust from the soil stockpile at Presidio Graded Area 9 site (this soil originated from the California Academy of Sciences excavation). On June 21, 2005, S&S Trucking collected one discrete grab sample (P25055) from a soil stockpile at the California Academy of Sciences excavation site prior to trucking the soil to the FS 6A Site.

On July 7, 2005, MACTEC collected a four-point composite sample (LF6SP105; using the MACTEC composite procedure) of the dune sand that had been stockpiled onsite, and on October 26, 2005, the Trust Remediation staff collected a four-point composite sample (LF6SS305) using the Trust composite procedure from the dune borrow source (within the California Academy of Sciences excavation). Table 10 presents the stockpile and placed backfill results; Appendix L contains the Geologica and S&S Trucking sample laboratory reports.

Geologica samples were analyzed for TPHg, TPHd, BTEX, pesticides, PCBs, and total lead; the S&S Trucking sample was analyzed for metals, TPHd, and TPHfo; the MACTEC sample was analyzed for metals, TPHd, TPHfo, and PCBs; and the Trust sample was analyzed for TPHg, TPHd, TPHfo, and BTEX. Analytical results showed selenium was detected at a concentration of 1.2 mg/kg in sample LF6SP105, which exceeded the Native Plant and Landscape Zone cleanup levels of 0.5 and 1.1 mg/kg, respectively. Mercury was detected at a concentration of 0.42 mg/kg in sample P25055, which marginally exceeded the Native Plant Zone cleanup level of 0.4 mg/kg but was below the Landscape Zone Cleanup Level of 1.6 mg/kg.

On July 18 through 20, 2005, PSEC hauled and placed approximately 800 cubic yards of the dune sand into the bottom of the trench after the former 72-inch storm drain was removed (Section 2.2.3.2). PSEC hauled and placed about 3,060 cubic yards of the dune sand into the Landscape Zone from October 24 to November 4, 2005 (Figure 7).

2.3.2 Compaction

Minimal compaction of backfill was performed because restoration areas required relatively loose soils for plant habitat. Bulk samples of the imported dune sand from California Academy of Sciences, imported native Colma, and onsite native Colma were collected on August 30 and October 21 and 24, respectively, and submitted to RGH Geotechnical and Environmental Consultants, Santa Rosa, California (RGH) for compaction characteristics by ASTM D1557. The soil was suitable for backfill material with the dune sand having a maximum dry density of 108 pounds per cubic foot (pcf) and optimum moisture of 11 percent and the Colma having maximum dry densities of 123 and 128 pcf and optimum moisture of 10 percent. Laboratory compaction characteristics test results are included in Appendix G.

Between August 30 and October 24, 2005, MACTEC performed periodic earthfill construction observation and compaction testing. MACTEC performed 19 in-situ moisture/density tests in accordance with ASTM D2922 and D3017. All final tests exceeded 90% of the maximum dry density. Moisture/density test results are included in Appendix G.

2.3.3 Piezometer and Monitoring Well Installation

On December 7, 2006, Kamman Hydrology & Engineering, Inc. (KHE), under contract to the Trust, installed six piezometers (LF6PZ101 through LF6PZ106) at the Site. The purpose of the piezometer installation was to monitor and characterize hydrologic conditions beneath selected riparian vegetation zones within the restored FS 6A corridor as part of FS 6A revegetation planning and assessment efforts. A report titled *Piezometer Installation and Monitoring, Fill Site 6A,* which detailed the piezometer

installation activities, was submitted to the Trust on April 14, 2006. A copy of this report is included in Appendix H and piezometer locations are also presented on Figure 8.

On November 16 and 17, 2005, three groundwater monitoring wells (LF6GW104, LF6GW105, and LF6GW106) were drilled installed by Gregg Drilling under the oversight of a MACTEC Professional Geologist (PG). The RAP proposed two new well locations; however, the DTSC requested an additional well (LF6GW106) to be installed cross-gradient of the Site. Well LF6GW104 was moved to the center of the Site down gradient of the fuel line excavation to monitor onsite groundwater quality. Well LF6GW105 was installed in accordance with the RAP upgradient of the Site and Well LF6GW106 was installed cross-gradient of the Site. Plate 8 shows well locations.

The well boreholes were advanced using a drill rig equipped with eight-inch hollow stem augers following protocols described in the Presidio-Wide Quality Assurance Project Plan (QAPP; *Tetra Tech, 2001)*. Soil borings were continuously sampled using a California modified split spoon sampler until native soil was observed. Thereafter, the samples were collected at 5-foot intervals; 20 samples were collected in 6-inch stainless steel tubes and retained. Boring logs and well completion diagrams are included in Appendix H.

Five soil samples (three in fill and two in native material) were collected and submitted for analysis for metals:

- LF6GW105(6.5) [fill]; LF6GW105(10.0) [fill]; LF6GW105(16.0) [native; 3.0 feet below the fill/native contact]

- LFGW106(3.0) [fill]; LF6GW106(15.5) [native; 5.0 feet below the fill/native contact].

Analytical results are presented in Table 13 and will be incorporated into the Trust's investigation and evaluation of FS 6B.

All three well boreholes were advanced approximately 10 feet below encountered groundwater and well casings were set in place in the boreholes by lowering through the augers. Wells LF6GW104 and LF6GW106 were completed to 25 feet bgs using 15 feet of 2-inch diameter 0.020-inch slotted PVC screen and 10 feet of 2-inch diameter flush–threaded PVC blank casing.

Well LFGW105 was completed to 30 feet bgs using 10 feet of 2-inch diameter 0.020-inch slotted PVC screen and 20 feet of 2-inch diameter flush-threaded PVC casing. Filter packs of washed Lonestar 2/12 silica sand were placed in the annular spacing between the well screens and borehole such that the sand extended 1 foot above the well screen. A 1-foot thick plug of bentonite pellets was placed above the sand pack and hydrated with water. The pellets were then hydrated a minimum of 30 minutes so that the bentonite expanded to form an annular seal above the sand. The annulus above the bentonite was grouted with a bentonite-cement grout to approximately 0.5 feet bgs using a tremie hose. The grout was mixed for approximately 45 minutes or until the grout was completely smooth.

On December 7, 2005 and March 17, 2006, as part of the Presidio wide quarterly monitoring program, Treadwell & Rollo performed groundwater monitoring of the new wells LF6GW104 through LF6GW106. Results of the sampling indicated that organic compounds were not detected in any of the collected samples and that detected metals were below cleanup levels.

Appendix M includes the Q3/Q4 2005 semi-annual monitoring results from the second semi-annual groundwater monitoring report issued April 14, 2006, and draft data tables from the Q1 2006 that are planned to be presented in the first quarter 2006 semi-annual report in October 2006.

2.3.4 Finish Grade Survey

On January, 23 and 26, 2006, Chaudhary performed the final as-built survey that represents final Site conditions. The mapping prepared for this survey is included on Figure I-2 in Appendix I.

2.3.5 Storm Water Release of Sediments from Landscape to Native Plant Zone

In early 2006, during a high-intensity rainfall event, storm water ponded on soil placed within the Landscape Zone during restoration activities (imported soil from California Academy of Sciences; Section 2.3.1.2), and the ponded water abruptly released. The flow of ponded storm water created a gully and transported sediment into the newly constructed open channel within the Native Plant Zone.

At the direction of the Trust, Watershed performed Best Management Practices (BMPs) mitigation measures, which prevented further erosion during the remainder of the rainy season. These measures included placement of waddles, geotextile landscape fabric, and hay on bare soils. The Trust plans to install a curb on Girard Road and landscape the east side of the Site in summer and fall of 2006 to prevent future surface water ponding and erosion.

3.0 DATA VALIDATION AND LABORATORY EVALUATION OF CADMIUM ANALYTICAL DATA

Samples were collected in accordance with the QAPP (using Presidio sample nomenclature and sampling methods and analysis) unless indicted otherwise. Table 2 summarizes the sampling program and Table 3 lists laboratory qualifiers. Appendix B contains laboratory reports on disk, and Appendix J contains the laboratory quality control summary report.

3.1 Data Validation

Soil and water sample results were subjected to level III and level IV data validation, performed by DataVal, Inc in accordance with the Presidio-Wide QAPP (T*etra Tech 2001)*. Selected stockpile sample analytical results were not validated because they were sampled by other contractors, as indicated in the sampling program summary presented as Table 2. Data validation results are summarized in Appendix J.

Review of the data validation results indicates the following significant findings.

- The data was found to be usable without exception, with added qualifiers summarized in Table 3 in Appendix J.
- Reporting limits for soil samples were raised due to dry weight correction and due to interferences inherent in the sample matrix. Materials expected to be in landfill excavation soils, such as metals and organic material, caused varied interferences on analytical testing.
- A comparison of reporting limits (RL) for nondetect compounds to the limits listed in the Presidio QAPP *(Tetra Tech, 2001)* shows that the RL for several compounds were above cleanup levels. The laboratory reporting limit did not meet project required RLs for acetone, methylene chloride and vinyl acetate, 2-nitrophenol in water matrix samples, and 2-nitrophenol and benzoic acid in soil matrix samples. Because detections between the RL and Method Detection Limit were reported as estimated values (J), any detection above the cleanup level would have been reported for these analytes.

- The SVOC results in sample LF6EX159(1.0) (182169-005) were reported at a two-fold dilution due to the nature of the sample matrix. The toxaphene results for pesticides in sample LF6EX111(2.0) (180219-002) were reported at a five-fold dilution due to the nature of the sample matrix. The results for all pesticides in samples LF6SP105 (180485-007) and LF6SP1109-C (183340-002) were reported at ten-fold dilutions due to the nature of the sample matrices. The results for all pesticides except alpha-chlordane and gamma-chlordane in samples LF6SS303 (182754-001), LF6SS304 (182754-002) and LF6SS306 (182884-001) were reported at five-fold dilutions due to the nature of the sample matrices. Because detections between the RL and Method Detection Limit were reported as estimated values (J), any detection above the cleanup level would have been reported for these analytes.

- The extraction for herbicides EPA 8151A was performed 1 day past the 14-day extraction holding time in sample LF6EX111 (2.0) (180219-002). The non-detected results for herbicides in this sample were qualified as estimated (UJ).

- The percent differences failed the 10% difference project acceptance criteria for the ICP serial dilution of samples LF6EX110(1.0) (180219-001), LF6GW206 (180818-006), LF6WW200 (180879-001), LF6EX102(3.0) (180081-001), LF6EX103(3.0) (181272-001), LF6EX100(6.5) (182169-001), LF6SP1109-F (183340-001). The results in the associated samples were qualified as estimated (J/UJ). See Table 2 in appendix J for a summary of qualifications due to serial dilution.

- Four of the six field duplicate pairs were outside the acceptable precision for relative percent difference of 50%. This is not unexpected due to the inherent non-homogeneity of the sample matrix for excavation soils and storm water samples.

3.2 Laboratory Evaluation of Cadmium Analytical Data

No collected samples exceeded the human health residential cleanup level of 1.7 mg/kg for cadmium, however, reported concentrations of cadmium exceeded the established cleanup level for the Native Plant

and Landscape Zones of 0.8 mg/kg in 24 of 58 confirmation samples analyzed for cadmium. The range of exceedance above 0.8 mg/kg was narrow (0.84 to 1.2 mg/kg excluding over-excavated samples). Except for two of the samples, cadmium was detected above the laboratory reporting limit (RL) of 0.27 mg/kg. Curtis and Tompkins examined their practices and methods to determine whether cadmium exceedances could have resulted from laboratory quality control, instrument bias, or iron interference.

Laboratory Quality Control

Potential issues related to laboratory quality control were examined in order to assess whether instrument calibration and/or interferences from other analytes present in the sample may have biased the reported cadmium concentrations. Two analytical instruments were used by the laboratory for analysis of metals by EPA Method 6010. This method combines an inductively coupled plasma torch with atomic emission spectrometry. Each instrument reported a similar number of detections above the cleanup level, indicating that there was no bias relating to any tendency for one particular instrument and to consistently report higher concentrations of cadmium in the samples.

Method Detection Limit Review

The method detection limit (MDL) studies for both instruments were evaluated for any evidence of variability between individual sample runs at a known concentration. Because the spiked concentration of 0.0625 mg/kg was low relative to the concentrations detected in the field samples, it is not possible to draw any conclusions from the MDL study regarding variability between different analytical runs on each instrument. The laboratory-spiked samples were also examined for evidence of potential variability. However, the spike concentration of 10 mg/kg in the laboratory control samples and laboratory control duplicate samples (LCS/LCSD), and matrix spikes and matrix spike duplicates (MS/MSD) were high relative to the reported concentrations in the field samples. The acceptance criteria for the MS/MSD are 68 to 120 percent recovery for cadmium, with an acceptable relative percent difference (RPD) of

20 percent. The variability of the sample results from 0.8 mg/kg is between 0.64 and 0.96 mg/kg, suggesting that variability in the analytical process was not a factor for these samples.

Iron Interference

The potential for inter-element interference from iron to result in either false positive detections or elevated cadmium concentrations was also examined. To compensate for any potential bias, inter-element corrections (IECs) are run and the instrument software is adjusted to compensate for any potential bias based on the results of the analysis of the IEC. To verify that these IECs are effective (within a certain range), each ICP sequence includes an analysis of an Interference Check Standard (ICS). The ICS contains relatively high concentrations of analytes known to cause inter-element interferences, and the results for target compounds subject to potential bias must be below the reporting limit.

Curtis and Tompkins used two instrument ICPs; an older one that used IECs, and a newer one that used updated technology called multi-component spectral fitting (MSF). Both instruments are fully capable of meeting method requirements and detection levels.

The iron concentration in the ICS standard used for the older ICP was 100 mg/L; the cadmium concentration reported for the standard was required to be less than 5 µg/L. This indicates that iron in the digestate up to a concentration of 100 mg/L will not cause reported cadmium concentrations to be biased high (at the 5 µg/L reporting limit). The laboratory reviewed the data for three random samples where cadmium was detected at concentrations greater than 0.8 mg/kg. In each sample the reported iron concentration in the digestate was approximately 500 mg/L or greater, which exceed the concentration used in the ICS.

The newer ICP used MSF in place of IECs. MSF uses multivariate calibration to determine the concentration of an analyte, which is analogous to a mathematical filter that can distinguish the individual

components of a complex spectral profile. The contribution to the signal due to interference, background, and noise can be separated from the signal due to the presence of the target analyte. In this manner, the instrument corrects for any interference of cadmium results due to the presence of iron in the sample.

To further evaluate for any potential bias on reported cadmium concentrations, five samples collected from FS 6A for which digestates were still present at the laboratory were analyzed for cadmium and iron using the newer ICP-MSF. The analyses were run on the undiluted digestate, following either a 2-fold or 4-fold dilution to determine whether reported concentrations of cadmium would significantly differ. The results of the serial dilutions are summarized in the following table.

Sample Number	Lab ID	Iron* mg/kg	Cadmium (mg/kg)		Dilution Factor
			(undiluted)	(serial dilution)	
LF6EX154(10.0)	181894-001	20,000	0.63	0.65	2
LF6EX158(1.0)	181894-005	23,000	1.2	1.2	4
LF6EX100(6.5)	182169-001	25,000	0.9	0.95	4
DUP(092905)-2	182169-004	19,000	0.63	0.63	2
LF6EX159(1.0)	182169-005	27,000	0.93	0.96	4

*Note: Samples were analyzed for iron following a 100-fold dilution.

These results show no evidence of a positive bias for cadmium when samples were analyzed using the newer instrument. Because cadmium results were comparable between the two instruments, it can also be inferred that reported cadmium results using the older instrument were not biased high as well. Accordingly, there is no evidence that the reported concentrations of cadmium in the samples collected at FS 6A have been affected by any bias associated with the date of sample collection and analysis, depth, or laboratory practices, such as the specific instrument utilized for the analysis or sample preparation.

4.0 FINAL SITE CONDITIONS

4.1 Evaluation of Final Confirmation Sampling Results for Clean Closure

As described in Section 2.2.2, soil confirmation samples were collected from the perimeter and bottom of the excavation based on a pre-established grid as proposed in the RAP. Additional confirmation samples were also collected from the sidewalls of the protected Redwood Grove avoidance zone, in selected over-excavated areas, beneath the former building foundations, and along the 72-inch storm drain. Section 1.2.6 describes the criteria for clean closure and how confirmation sample results were compared to cleanup levels.

This section summarizes final Site conditions in the Native Plant and Landscape Zones with respect to meeting cleanup criteria. Sections 4.1.1 and 4.1.2 summarize final confirmation sample results for Native Plant and Landscape Zones as compared to cleanup levels presented in Table 1; Section 4.1.3 presents UCLs for inorganic compounds detected above Table 1 cleanup levels; and Section 4.1.4 presents a discussion of inorganic compounds which exceed clean closure criteria (i.e., exceedance of cleanup levels established using Colma background concentrations of metals). Figure 6 presents cleanup level exceedances in final confirmation samples. Although the RAP did not require evaluation of perimeter confirmation samples against cleanup criteria, the data has been included in the discussion below so that these data could be assessed relative to the clean closure criteria.

4.1.1 Comparison of Confirmation Sample Analytical Results in the Landscape Zone (Eastern Portion of Site) with Cleanup Levels

Table 6 presents analytical results with respect to detected organic compounds in the Landscape Zone and shows those results that exceed cleanup levels (highlighted within a box), including those which were removed during over-excavation. Final analytical results collected from 25 stations show samples met cleanup levels for organic compounds. TPH, pesticides, herbicides, PCBs, SVOCs, and VOCs were

either not detected, or were detected below applicable cleanup levels in the final confirmation soil samples.

Table 7 presents analytical results with respect to detected inorganic compounds in the Landscape LUC Zone, including those that were removed during over-excavation. Samples were collected from 22 locations that included perimeter stations. In the Landscape Zone, arsenic, cadmium, selenium, and zinc were detected at concentrations greater than cleanup levels for non-excavated confirmation samples:

- <u>Arsenic (cleanup levels of 6.2 mg/kg):</u> Concentrations left in place exceeded the cleanup level at two stations (LF6EX109(0.5) [6.6 mg/kg] and LF6EX156(2.0) [7.2 mg/g]).
- <u>Cadmium (cleanup level of 0.8 mg/kg):</u> Concentrations left in place exceeded the cleanup level at nine stations (exceedances range from 0.84 to 1.2 mg/kg).
- <u>Selenium (cleanup level of 1.1 mg/kg):</u> Concentrations left in place exceeded the cleanup level at three stations (LFEX131(6.0) [1.2 mg/kg], LFEX132(9.0) [2.0 mg/kg], and LFEX152(1.5) [1.4 mg/kg]).
- <u>Zinc (cleanup level of 60 mg/kg):</u> Concentrations exceeded the cleanup level at four stations (exceedances range from 68 to 210 mg/kg).

4.1.2 Comparison of Confirmation Sample Analytical Results in the Native Plant Zone (Western Portion of Site) with Cleanup Levels

Table 4 presents analytical results with respect to detected organic compounds in the Native Plant Zone as well as shows those results that exceed cleanup levels (highlighted within a box), including those samples that were subsequently removed during over-excavation. Final analytical results collected from 35 stations.

Analytical results indicate that with the exception of total PCBs at one location (further described below), PCBs, TPH, pesticides, herbicides, SVOCs, and VOCs were either not detected, or were detected below applicable cleanup levels in the final confirmation soil samples.

Total PCBs is the sum of reported concentrations of isomers Aroclor 1254 and 1260. The Presidio-wide Cleanup Level Document (*EKI, 2002*) reports a cleanup level only for Aroclor 1254. To be conservative, the cleanup level for both Aroclor 1260 and total PCBs was assumed to be equal to the cleanup level for Aroclor 1254. Total PCBs in final confirmation sample LF6EX107(0.5) were detected at 0.035 mg/kg marginally above the ecological special status cleanup level of 0.033 mg/kg, but well below the residential cleanup level of 0.16 mg/kg and recreational cleanup level of 0.39 mg/kg. The location of LF6EX106(0.5) is within an area proposed for land use control as described in Section 5.0.

Table 5 presents analytical results with respect to detected inorganic compounds in the Native Plant Zone, including those that were subsequently removed during over-excavation. Samples were collected from 31 locations (including perimeter sample stations). Arsenic, barium, cadmium, copper, selenium, and zinc were detected at concentrations greater than applicable cleanup levels for non-excavated confirmation samples:

- Arsenic (cleanup level of 6.2 mg/kg): Concentrations left in place exceeded the cleanup level at one station (LFEX137(4.0) [11 mg/kg]).

- Barium (cleanup level of 320 mg/kg): Concentrations left in place exceeded the cleanup level at one station (LFEX127(25.0) [360 mg/kg]).

- Cadmium (cleanup level of 0.8 mg/kg): Concentrations left in place exceeded the cleanup level at seven stations (exceedances range from 0.84 to 1.1 mg/kg).

- Copper (cleanup level of 49 mg/kg): Concentrations left in place exceeded the cleanup level at two stations (LF6EX106(1.0) [63 mg/kg] and LFEX111(2.0) [65 mg/kg]).

- Selenium (cleanup level of 0.5 mg/kg): Concentrations left in place exceeded the cleanup level at 15 stations (exceedances range from 0.52 to 1.7 mg/kg).

- Zinc (cleanup level of 60 mg/kg): Concentrations left in place exceeded the cleanup level at five stations (exceedances range from 81 to 180 mg/kg).

4.1.3 Comparison of Inorganic Compounds in Confirmation Samples to Upper Confidence Limit (UCL) Calculations

As described in the RAP, compliance with cleanup levels in soil is achieved when either all soil confirmation sample results or the 95 percent UCL on the arithmetic mean of the sample data set are less than the applicable cleanup goal for the proposed land use. For metals that exceeded applicable cleanup levels presented in Table 1, UCL calculations were performed and are described below.

Metals were the only analytes detected at concentrations greater than their respective cleanup levels in final confirmation samples at FS 6A. In compliance with criteria for clean closure as outlined in the RAP, the 95 percent UCL concentration for each metal was calculated, segregating the sample results with respect to the proposed land uses for the Site. Only final confirmation sampling results were used for calculations; e.g., sample results corresponding to soil that was over-excavated were not included in the calculations. As described in the RAP, compliance with cleanup levels in soil is achieved when the 95 percent UCL on the arithmetic mean of the sample data set are less than the applicable cleanup goal for the proposed land use.

The 95 percent UCL was calculated using the methodology described in *EPA, 2002* utilizing the ProUCL software (Version 3.00.02) developed by the EPA Office of Research and Development (methodology is described in Appendix K). Non-detect results were assigned a value of one-half the reporting limit. This technique assumes that the analyte is actually present in the sample based on the fact that it has been detected in other samples, and that values between the reporting limit and zero are equally likely. To

prevent a spatial bias in the calculation of the UCL, the average of the primary and duplicate sample results was used as the analyte concentration for that sample location.

A summary of the metals data used to calculate UCLs, as well as a comparison of the results to applicable cleanup levels is presented for the Native Plant Zone in Table 14. A data summary and comparison of the calculated UCLs to cleanup levels for the Landscape Zone are presented in Table 15. The calculated UCLs for cadmium, selenium, and zinc exceed the applicable cleanup level for each element in both the Native Plant and the Landscape Zones.

In the case of zinc, the calculated UCL above the applicable cleanup level is weighted by inclusion of analytical results from two samples (LF6EX104(2.0); 180 mg/kg and LF6EX158(1.0); 210 mg/kg). These samples are perimeter samples located on the edge of the Site at the boundary of FS 6A and FS 6B where the RAP does not require meeting cleanup levels (FS 6B cleanup is being addressed in a separate RAP). When the zinc results from sample locations LFEX104 and LF6EX158 are excluded from the Native Plant Zone and Landscape Zone, respectively, the calculated UCLs for zinc are 51 mg/kg and 51 mg/kg, respectively, which are less than the applicable cleanup level for zinc of 60 mg/kg.

4.1.4 Evaluation of Inorganic Compounds Exceeding Cleanup Levels with respect to Colma Background Dataset

Only cadmium and selenium exceed the RAP clean closure criteria as discussed above. As discussed in Section 3.2, potential laboratory bias was evaluated from use of laboratory equipment and the conclusion reached in the evaluation indicates that laboratory bias did not contribute to cadmium detections above cleanup levels. However, cleanup levels used to meet the clean closure criteria for these metals were based on background data collected for the Colma soil that underlies fill material at the Site. Although background data sets are useful to assess whether metal concentrations are the result of contamination or are naturally-occurring, it is important to also evaluate specific metal exceedances to assess whether they are the result of contamination or from Site-specific variations in background conditions.

To assess whether cadmium and selenium exceedances are from contamination or Site-specific variations in background metals, the following types of evaluations were performed:

- The range of exceedances for each metal was compared to the respective background cleanup level and the magnitude of the UCL exceedance was assessed.
- The background data for Colma formation soils was compared to Site-specific data using the Wilcoxin Rank-Sum Test as recommended in *DTSC 1997* and *EPA 2002* (See Appendix K for Wilcoxin Rank-Sum methodology).
- Spatial trends horizontally and vertically for samples collected from native material was evaluated.

Cadmium

According to the RAP, further analysis of the cadmium detections reported from the Site assessment indicates that that they "may be indistinguishable from ambient background soil concentrations" *(Treadwell and Rollo, 2004)*. Cadmium was considered a potential COC because it was detected above the laboratory reporting limit in the background data set which was used as the established background level. The reporting limits from the background data set ranged from 0.1 to 1.2 mg/kg, and background for cadmium in Colma soils was established as the most frequently encountered detection limit (0.8 mg/kg) due to the low frequency of detection (less than 50 percent; 5 cadmium detections in a background data set of 28 samples).

The range of cadmium exceedance at FS 6A is narrow (0.84 to 1.1 mg/kg in the Native Plant Zone, and 0.84 to 1.2 mg/kg in the Landscape Zone excluding over-excavated samples), marginally exceeding the special species/eco buffer zone cleanup level of 0.8 mg/kg. The cadmium human health residential cleanup level is 1.7 mg/kg. The calculated UCLs for cadmium in the Native Plant Zone and the Landscape Zone are 0.85 mg/kg and 0.98 mg/kg, respectively, also marginally exceeding the applicable cleanup level of 0.8 mg/kg.

A comparison of cadmium detections at FS 6A with the background data for Colma soils using the Wilcoxin Rank-Sum test (Appendix K) indicates that cadmium concentrations are above background levels. However, this is probably due to the low number of cadmium detections in the background data set (5 of 28 detections ranging from 0.220 to 0.493 mg/kg).

The spatial distribution of cadmium detections at concentrations greater than the established background are present throughout FS 6A where samples were collected in native soils (Figure K1, Appendix K). Confirmation samples that were collected from depths between 0.5 feet below the fill native interface and 12.5 ft bgs below the fill native interface showed a range of analytical results between 0.4 and 1.2 mg/kg with the exception of sample LF6EX143(24.5) [5.7 mg/kg] that was over-excavated. In addition, the reported concentrations do not display trends associated with the sample depth in native soil (i.e., sample concentrations do not decrease with depth as might be expected if contamination was migrating downward).

Field samples were analyzed between June and October 2005. With the exception of July 8, 2005, when all four detected cadmium concentrations exceeded the cleanup level, there is no evidence of any temporal correlation with elevated results.

A histogram of cadmium results for FS 6A native soil shows a normal distribution, with a narrow distribution around a simple mean concentration of 0.79 mg/kg, with a low standard deviation of 0.29 (Figure K2, Appendix K). Evaluations performed by the analytical laboratory ruled out possible equipment bias in the reported cadmium concentrations.

This evaluation suggests that reported concentrations of cadmium above cleanup levels are likely representative of natural levels associated with the native soils at FS 6A rather than residual contamination.

Selenium

Although selenium was not considered a potential COC in the RAP, it was detected at concentrations greater than its respective cleanup levels in both the Native Plant Zone and the Landscape Zone. The selenium range of exceedance is narrow and marginally exceeds special status and eco buffer cleanup levels (0.52 to 1.7 mg/kg in the Native Plant Zone [special status cleanup level of 0.5 mg/kg], and 1.2 to 1.4 mg/kg in the Landscape Zone [eco buffer cleanup level of 1.1 mg/kg]). The selenium human health cleanup level is 360 mg/kg.

A comparison of selenium detections at FS 6A with the background data for Colma soils using the Wilcoxin Rank-Sum test (Appendix K) indicates that selenium detections are within the normal range of background and not representative of contamination at FS 6A.

4.2 Minor Deviations from the RAP and Work Plan

Pre-remedial, remedial, and restoration action activities were generally performed in accordance with the RAP and Work Plan. Minor deviations from these planning documents are summarized in Table 17.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of the remedial action was to remove fill materials and debris within the Site boundaries and achieve clean criteria consistent with planned Site re-use. Based on planned Site re-use, closure criteria was achieved over the majority of the Site with the exceptions described herein.

For the areas that did not meet closure criteria, the Trust proposes to implement land use restrictions (LURs) for portions of the Site (shown on Figure 9) where future site use will be restricted based on COCs remaining in soil at concentrations that exceed or may exceed cleanup levels and to notify present or future owners and tenants at the Site of COCs in soil, structures, or fill left in-place.

5.1 Land Use Restrictions

Two types of LURs will be adopted for FS 6A: (1) Land Use Control (LUC) and (2) Land Use Notification (LUN):

- LUC: The LUC will be implemented in cases where residual COCs are left in-place in soil at concentrations exceeding applicable cleanup levels and have a potential to result in significant risk for certain future land uses. The LUC will restrict future land uses that are incompatible with residual COC concentrations remaining at the Site above applicable cleanup levels. The LUC will also serve to notify present or future owners and tenants at the Site of the presence and location of residual COCs in soil at concentrations above cleanup levels.

- LUN: The LUN is designed to notify present or future owners and tenants at the Site of the presence and locations of residual COC concentrations, debris fill, abandoned utilities, or building foundations left in-place at the Site.

The land use restrictions will remain in effect until they are formally removed or modified. These restrictions will be further defined in a Site-specific LUCs Master Reference Report (LUCMRR) currently in preparation and will fulfill the following goals:

- Protect against future land uses that are incompatible with residual COC concentrations remaining at the Site;

- Provide appropriate Trust staff (e.g., Natural Resources Program staff) with chemical data for residual COCs and information concerning the locations of debris fill, abandoned utilities, and foundations left in place. These data are being provided so that an informed decision can be made by Trust staff regarding future use of the Site and any work conducted in the area in the future;

- Provides a means (through the Trust's LUC program) for conveying the land use restrictions to Trust personnel (including land use decision makers), property managers, tenants, and regulators;

- Provides a mechanism for any subsequent property owners or transferees to assume responsibility for complying with notification requirements if or when the property is transferred; and

- Requires that DTSC be contacted prior to a change to a sensitive land use (as defined in the LUCMRR) or a change in the selected remedy.

Under the LUCs and LUNs adopted for FS 6A, over the majority of the Site there will be no restrictions on future site development. The exception areas consist of areas with building foundations that have been left in-place and perimeter areas where sampling indicated unremediated fill associated with FS 6B may be located.

Except for arsenic, COC concentrations representing soil in-place at FS 6A are below residential human health cleanup levels. With respect to arsenic, the 95 percent UCL for arsenic is below background for native soils at the Site (cleanup level protective of residential receptors) except for two detections of arsenic in perimeter samples. As discussed in Section 2.2.2.2, over-excavation was performed at two perimeter areas where PCB detections were above human health residential cleanup levels but well below recreational cleanup levels. Insufficient lateral confirmation sampling was performed to confirm that the elevated PCB concentrations did not extend beyond the over-excavated areas.

The following LUCs and associated LUC Zones will be adopted for FS 6A:

- Building Foundation LUC Zone – This LUC Zone is in the southern portion of the Site (Figure 8) where building walls and basement foundations were left in-place because safe removal was not practical. Although not tested, soil beneath the building foundations may contain COCs at concentrations exceeding cleanup levels for residential receptors and special status ecological species. Under the LUC for the Building Foundation LUC Zone, the Trust will prohibit sensitive uses, including residential land use. Ecological use restrictions will also be applied for the Building Foundation LUC Zone, which overlaps with the Ecological LUC Zone (restrictions for ecological use are described below for the Ecological LUC Zone). The LUC for the Building Foundation LUC Zone will also provide notification of the presence of the building foundation structures.

- Ecological LUC Zone – The Ecological LUC Zone covers the eastern portion of the Site (Figure 8). Soils within this LUC Zone contain concentrations of chlordane that exceed ecological special status species cleanup levels, but not buffer zone or human health cleanup levels. Thus, an ecological use restriction will be applied for this Zone. The Trust will restrict this Zone from being restored as a special status ecological habitat area. This Zone also includes the "redwood zone" (Figure 9) where debris fill, and active and abandoned utilities, were left in-place within the root zone of the redwood trees to avoid damage to the trees. The LUC for the Ecological LUC Zone will also provide notification of the presence of debris fill and abandoned utilities within the "redwood zone."

The following LUNs and associated LUN Zones will be adopted for FS 6A:

- Storm Drain LUN Zone – The Storm Drain LUN Zone is located in the northwestern portion of the Site (Figure 9). The LUN will provide notification of the presence of 72 feet of a 72-inch storm drain culvert abandoned in place and an active culvert in the southern part of the Site. Samples could not be collected beneath the 72-inch culvert to demonstrate the presence or absence of COCs above applicable cleanup levels. However, based on data collected along other segments of the storm drain

that were removed, COCs are not expected to be present in this Zone above applicable cleanup levels. Given the unlikelihood of COC exceedances and the relatively small, isolated area where the storm drain segments are located, this soil is not anticipated to pose a significant risk to human or ecological receptors.

- <u>Perimeter Fill LUN Zone</u> – The Perimeter Fill LUN Zone runs along perimeter areas in the western portion of the Site (Figure 9). The LUN for this Zone will provide notification of the presence of debris fill material left in place on the perimeter of the Site. Zinc was detected at concentrations exceeding ecological special status species and ecological buffer zone cleanup levels in two samples within this Zone. As described in Section 5.1, these isolated hits of zinc above ecological cleanup levels do not pose a significant risk to ecological receptors. Thus, a LUC is not warranted for this Zone, but notifications will be in-place to provide appropriate Trust staff (e.g., Natural Resources Program staff) with the chemical data so that informed decisions can be made by Trust staff regarding future ecological restoration of the area.

The LUCMRR Site-specific addendum for FS 6A Site restrictions and requirements that shall apply to the LUC and LUN Zones presented above follows:

- **Allowable Land Uses** – The current and future anticipated land uses for FS 6A include residential housing and restoration of a portion of the Site as native plant habitat (ecological special status species use), as set forth in the PTMP (*Trust, 2002a*) and VMP (*Trust* and *NPS, 2001*). There will be no restrictions on land uses at FS 6A, including residential use of the Site, with the exception of the following:
    - Building Foundation LUC Zone: The Trust will prohibit sensitive or residential land use within the Building Foundation LUC Zone (Figure 9). Such sensitive use restrictions include the prohibition of housing and other sensitive uses, such as schools, day care facilities, hospitals,

playgrounds, or any other uses involving the regular and constant use by children, the infirm, or the elderly.

- Ecological LUC Zone: The Trust will restrict the Ecological LUC Zone (Figure 9) from being restored as a special status ecological habitat area.

- **Administrative Controls** – For any project that involves excavation or intrusion into the subsurface within any of the LUC or LUN Zones, a project permit, including excavation clearance and project conditions and mitigations, will be applied for and approved through the Trust's dig permit program and National Environmental Policy Act (NEPA) and the NHPA ("N^2 process") prior to commencement of subsurface disturbance in any LUC or LUN Zones.

- **Removal of Land Use Restriction** – If, in the future, the Trust chooses to remove a LUC or LUN or a portion thereof, in compliance with the LUCs Master Reference Report (LUCMRR; described below), soil sampling will be required to verify that applicable cleanup levels have been achieved.

- **Management of Excavated Soils/Materials** – Soils excavated from a LUC or LUN Zone will be managed and/or disposed in accordance with then applicable federal, state, and local laws governing excavation, handling, management, and disposal of the excavated material.

- **Imported Fill** – Imported fill used within the LUC or LUN Zones will meet the cleanup levels based on applicable land uses.

The procedures below will be followed to assure that the LUC or LUN requirements are adhered to by present and future owners and users of the Site:

- **LUC Master Reference Report (LUCMRR)** – The LUC and LUN Zones and data specific to and considerations applicable to each zone will be described in a Site-specific addenda to the Trust's LUCMRR. The LUCMRR, currently in preparation, will include a master map showing

Presidio-wide LUC and LUN Zones and a compilation of Presidio land use requirements and restrictions, is maintained and kept current at the Trust Library. Planning/project proponents and other members of the public may review existing land use restrictions for the Presidio by reviewing the LUCMRR in the Trust Library. The Site-specific addenda will explain in detail the application of the LUCs and LUNs at each site.

- **Project Permit Process** – In advance of implementation, Presidio plans and projects must be screened for compliance with the N^2 process. The Trust or NPS, as applicable, will use its interdisciplinary NEPA/NHPA environmental screening process to notify planning/project proponents of the LUC or LUN and require adherence to the restrictions and requirements for any plan/project involving the LUC or LUN Zones. In addition, for any project involving excavation or subsurface intrusion within the LUC or LUN Zones, the Trust must approve an Excavation Clearance Permit ("dig permit") to ensure that subsurface utilities (water, gas, sewer, fiber optic) are not damaged. The dig permit process will be used to notify and require adherence by excavation project proponents of the LUC or LUN requirements.

- **LUC Tracking in the Trust's GIS Database** – The Trust will include all FS 6A LURs (e.g., Building Foundation LUC Zone, Ecological LUC Zone, Storm Drain LUN Zone, and Perimeter Fill LUN Zone) in the GIS database that the Trust maintains to monitor its land use restriction sites. This database will be available to Trust staff to facilitate information transfer and decision making and land use planning for Presidio sites.

- **Notification and Annual Monitoring** – The Trust will prepare an annual Presidio LUC Report to confirm that land uses within Presidio are consistent with the restrictions and requirements of the specified LUC and LUN Zones. The FS 6A Building Foundation LUC Zone, Ecological LUC Zone, Storm Drain LUN Zone, and Perimeter Fill LUN Zone will be included in the report. The Trust will provide DTSC and RWQCB with a copy of the report.

- **Transfer of Ownership or Control** – The Trust will notify DTSC and RWQCB of any anticipated transfer of ownership or control of any portion of the LUC or LUN Zones for FS 6A. Any transfer of ownership or control of the LUC or LUN Zones for FS 6A, in whole or in part, will be handled as outlined in the LUCMRR. The Trust would likely record the LUCMRR with the City and County of San Francisco Recorder's Office and the Federal General Services Agency (GSA) to place subsequent Presidio owners or managers on notice of the existence of the LUC or LUN Zones at the Presidio. As part of the administrative transfer of the Site, the Trust will notify the subsequent owner or manager of the duty to comply with the land use restrictions and provide them with a current copy of the LUCMRR.

6.0 CQA OFFICER CERTIFICATION

"ENGINEERING CERTIFICATION"

CONSTRUCTION COMPLETION REPORT
FILL SITE 6A REMEDIATION
PRESIDIO OF SAN FRANCISCO, CALIFORNIA

This Construction Completion Report, prepared by MACTEC Engineering and Consulting, Inc. (MACTEC) for the Presidio Trust (Trust), has been prepared under my supervision and is accurate to the best of my knowledge.

The construction activities and materials described in this Report and observed by MACTEC include: excavation, utilities relocation and abandonment, and earthfill. Based on MACTEC's observations and the results of testing as described in this Report, it is MACTEC's opinion that construction at Fill Site 6A has been performed in general accordance with the intent of the Construction Drawings, Technical Specifications, Clean Closure Work Plan, and confirmation sampling requirements included in the Remedial Action Plan.

MACTEC Engineering and Consulting, Inc.

James P. Henderson, P.E.
Principal Engineer

Signature ______________________

Date 31 · July · 2006

REGISTERED PROFESSIONAL ENGINEER
JAMES P HENDERSON
NO. C 55644
EXP: 31-DEC-2006
CIVIL
STATE OF CALIFORNIA

7.0 REFERENCES

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TABLES

Table 1. Cleanup Levels for Soil and Groundwater
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Chemical [a]	Res - SS species Colma [a] (Native Plant Zone) mg/kg	Res - Eco buffer Colma [a] (Landscape Zone) mg/kg	Groundwater [a] µg/L
Inorganics			
Antimony	5	5	6
Arsenic	6.2	6.2	10
Barium	320	500	1000
Beryllium	10	10	4
Cadmium	0.8	0.8	1.1
Chromium	140	140	50
Cobalt	21	48	NE
Copper	49	120	11.8
Cyanide	1000	1000	NE
Lead	160	300	3.2
Mercury	0.4	1.6	0.012
Molybdenum	12	300	NE
Nickel	110	110	100
Selenium	0.5	1.1	5
Silver	2	2	4.1
Thallium	1	1	1.7
Vanadium	90	90	NE
Zinc	60	60	106
Volatile Organic Compounds (VOCs)			
Acetone	0.24	0.24	0.56
Benzene	0.6	0.6	1
2-Butanone (MEK)	3.8	3.8	NE
Carbon disulfide	200	200	NE
1,4-dichlorobenzene	0.13	0.13	5
Ethylbenzene	125	125	700
p-isopropyltoluene (p-cymene)	130	130	NE
Methylene chloride	0.076	0.076	4.7
Toluene	270	270	150
1,2,3-trichlorobenzene	15	15	NE
1,2,4-trichlorobenzene	15	15	NE
Trichlorofluoromethane	40	40	150
1,1,1-trichloroethane	8	8	200
Xylenes (total)	55	55	318
Polycyclic Aromatic Hydrocarbons (PAHs)			
Acenaphthene	30	40	1200
Acenaphthylene	30	40	NE
Anthracene	30	40	770
Benzo(a)anthracene	0.27	0.27	0.0044
Benzo(a)pyrene	0.027	0.027	0.0044
Benzo(b)fluoranthene	0.27	0.27	0.0044
Benzo(g,h,i)perylene	30	40	150
Benzo(k)fluoranthene	0.27	0.27	0.0044
Chrysene	2.7	2.7	0.0044
Dibenzo(a,h)anthracene	0.078	0.078	0.0044
Fluoranthene	30	40	300
Fluorene	30	40	300

Table 1. Cleanup Levels for Soil and Groundwater
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Chemical [a]	Res - SS species Colma [a] (Native Plant Zone) mg/kg	Res - Eco buffer Colma [a] (Landscape Zone) mg/kg	Groundwater [a] µg/L
Indeno(1,2,3-cd)pyrene	0.27	0.27	0.0044
2-methylnaphthalene	30	40	NE
Naphthalene	30	40	300
Phenanthrene	30	40	230
Pyrene	30	40	230
Polychlorinated Biphenyls (PCBs), Pesticides, Herbicides			
PCBs (Aroclor 1254)	0.033	0.16	0.00017
Aldrin	0.0039	0.029	0.00013
alpha-BHC	0.062	0.18	NE
beta-BHC	0.062	0.32	0.014
delta-BHC	0.062	0.18	NE
Chlordane	0.009	0.04	0.00057
2,4-D	0.025	5	70
Dicamba	0.01	5	NE
4,4'-DDD	0.049	0.53	0.00083
4,4'-DDE	0.098	0.61	0.00059
4,4'-DDT	0.0082	0.53	0.00059
Dieldrin	0.03	0.03	0.00014
Endosulfan	1.1	3.3	110
Endosulfan sulfate	1.1	3.3	110
Endrin	0.004	0.11	0.76
Endrin aldehyde	0.004	0.11	0.76
Endrin ketone	0.004	0.11	0.76
gamma-BHC	0.01	0.37	0.019
Heptachlor	0.017	0.12	0.00021
Heptachlor epoxide	0.017	0.088	0.0001
Isodrin	0.0039	0.029	0.00013
MCPP	5	0	NE
Methoxychlor	0.44	18	40
Petroleum Hydrocarbons			
TPH as gasoline(C7-C12)	11.6	610	443
TPH as diesel(C12-C24)	144	700	443
TPH as fuel oil(C24-C36)	144	980	443

NOTES:

[a] Cleanup levels selected were approved for the RAP and developed from either the RWQCB Order No. R2-2203-080 or Presidio-wide Cleanup Level Document (*EKI, 2002*). Per the RAP, cleanup levels for groundwater are based on the most stringent of the values for maintaining water quality criteria for drinking and surface water.

Checked GAL

Approved MQ

Table 2. Sampling Program Summary
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Area	Station Number	Northing	Easting	Matrix	Sample Number	Sample Depth Below Original Ground Surface (ft)	Sample Depth	Sample Type	Date Sampled	SVOCs (8270C)	VOCs (8260B)	TPHg/BTEX (8015B)	TPHd, Fo (8015B with silica gel cleanup [SW3630A])	Title 22 Metals (6000-7000 Series) or Total metals by GCMS (for water)	Hexavalen Chromium	Cyanide	PCBs (8082)	Pesticides EPA 8081	Chlorinated Herbicides	Phenols	PAHs (by 8270)	NOTES/COMMENTS
PERIMETER CONFIRMATION SAMPLING	LF6EX100(6.5)	479570.1879	1435847.894	soil	LF6EX100(6.5)	6.5	0-0.5	Primary	9/29/2005					X			X					Grid: 0, 1 - Building Foundation LUC Zone
	LF6EX100(6.5)	479570.1879	1435847.894	soil	Dup 092905-1	6.5	0-0.5	Duplicate	9/29/2005					X			X					Grid: 0, 1 - Building Foundation LUC Zone
	LF6EX101(1.0)	479835.9061	1435989.309	soil	LF6EX101(1.0)	1.0	0-0.5	Primary	9/29/2005					X			X					Grid: 0, 5 - Ecological LUC Zone
	LF6EX101(1.0)	479835.9061	1435989.309	soil	Dup 092905-2	1.0	0-0.5	Duplicate	9/29/2005					X			X					Grid: 0, 5 - Ecological LUC Zone
	LF6EX102(3.0)	479548.3	1435755.62	soil	LF6EX102(3.0)	3.0	0-0.5	Primary	6/16/2005					X			X					Grid: A, 0 - Building Foundation LUC Zone
	LF6EX103(3.0)	479622.2	1435621.57	soil	LF6EX103(3.0)	3.0	0-0.5	Primary	8/15/2005					X			X					Grid: C, 0 - Perimeter Fill LUC Zone
	LF6EX104(2.0)	479638.6	1435582.11	soil	LF6EX104(2.0)	2.0	0-0.5	Primary	6/16/2005					X			X					Grid: D, 0 - Perimeter Fill LUC Zone
	LF6EX105(1.0)	479675.9	1435588.36	soil	LF6EX105(1.0)	1.0	0-0.5	Primary	6/16/2005					X			X					Grid: D, 0 - Perimeter Fill LUC Zone
	LF6EX106(1.0)	479705.474	1435609.225	soil	LF6EX106(1.0)	1.0	0-0.5	Primary	6/16/2005					X			X					Grid: C, 1 - Perimeter Fill LUC Zone
	LF6EX107(0.5)	479738.5	1435602.83	soil	LF6EX107(0.5)	0.5	0-0.5	Primary	6/16/2005					X			X					Grid: D, 1 - Perimeter Fill LUC Zone
	LF6EX108(3.0)	479583.2833	1435693.568	soil	LF6EX108(3.0)	3.0	0-0.5	Primary	6/16/2005					X			X					Grid: B, 0 - Building Foundation LUC Zone (location over-excavated)
	LF6EX109(0.5)	479517.9	1435817.03	soil	LF6EX109(0.5)	0.5	0-0.5	Primary	6/16/2005					X			X					Grid: 0, 0 - Building Foundation LUC Zone
	LF6EX110(1.0)	479758.2425	1435668.052	soil	LF6EX110(1.0)	1.0	0-0.5	Primary	6/23/2005					X			X					Grid: C, 2 - Perimeter Fill LUC Zone
	LF6EX111(2.0)	479825.1929	1435697.103	soil	LF6EX111(2.0)	2.0	0-0.5	Primary	6/23/2005	X	X		X	X			X	X	X			Grid: C, 3 - Perimeter Fill LUC Zone (location over-excavated)
	LF6EX112(1.5)	479896	1435727.28	soil	LF6EX112(1.5)	1.5	0-0.5	Primary	6/23/2005					X			X					Grid: C, 4 - Perimeter Fill LUC Zone
	LF6EX113(1.0)	479964.2	1435755.22	soil	LF6EX113(1.0)	1.0	0-0.5	Primary	6/23/2005					X			X					Grid: C, 5 - Perimeter Fill LUC Zone
	LF6EX114(2.0)	480033.7	1435774.3	soil	LF6EX114(2.0)	2.0	0-0.5	Primary	6/23/2005					X			X					Grid: C, 6 - Perimeter Fill LUC Zone
	LF6EX115(2.0)	480042.8	1435821.65	soil	LF6EX115(2.0)	2.0	0-0.5	Primary	6/23/2005					X			X					Grid: C, 6 - Perimeter Fill LUC Zone
	LF6EX116(2.5)	480013.5	1435839.74	soil	LF6EX116(2.5)	2.5	0-0.5	Primary	6/23/2005					X			X					Grid: B, 6 - Perimeter Fill LUC Zone
	LF6EX134(2.5)	479933.3266	1435826.962	soil	LF6EX134(2.5)	2.5	0-0.5	Primary	7/20/2005					X			X					Grid: B, 5 - Building Foundation LUC Zone (location over-excavated)
	LF6EX137(4.0)	479901.3607	1435858.666	soil	LF6EX137(4.0)	4.0	0-0.5	Primary	7/21/2005					X			X					Grid: B, 5 - Building Foundation LUC Zone
	LF6EX138(3.0)	479824.8519	1435699.575	soil	LF6EX138(3.0)	3.0	0-0.5	Primary	7/21/2005	X	X	X	X	X			X	X	X			Grid: C, 3 - Perimeter Fill LUC Zone (Over-Ex. location LF6EX111(2.0)
	LF6EX147(1.0)	479872.836	1435930.261	soil	LF6EX147(1.0)	1.0	0-0.5	Primary	8/15/2005					X			X					Grid: A, 5 - Ecological LUC Zone (location over-excavated)
	LF6EX149(5.0)	479929.5145	1435828.54	soil	LF6EX149(5.0)	5.0	0-0.5	Primary	8/23/2005					X			X					Grid: B, 5 - Building Foundation LUC Zone (Over-Ex. location LF6EX134)
	LF6EX150(5.0)	479572.3646	1435724.477	soil	LF6EX150(5.0)	5.0	0-0.5	Primary	8/25/2005					X			X					Grid: B, 0 - Building Foundation LUC Zone (Over-Ex. location LF6EX108)
	LF6EX152(1.5)	479639.7813	1435885.153	soil	LF6EX152(1.5)	1.5	0-0.5	Primary	8/25/2005					X			X					Grid: 0, 2 - Ecological LUC Zone
	LF6EX156(2.0)	479870.3838	1435928.352	soil	LF6EX156(2.0)	2.0	0-0.5	Primary	9/15/2005					X			X					Grid: A, 5 - Ecological LUC Zone (Over-Ex. location LF6EX147)
	LF6EX158(1.0)	479705.5772	1435921.974	soil	LF6EX158(1.0)	1.0	0-0.5	Primary	9/15/2005					X			X					Grid: 0, 3 - Ecological LUC Zone
	LF6EX159(1.0)	479777.5773	1435944.107	soil	LF6EX159(1.0)	1.0	0.5-1.0	Primary	9/29/2005	X	X	X	X	X			X	X	X			Grid: 0, 4 - Ecological LUC Zone
SIDEWALL CONFIRMATION SAMPLING	LF6EX130(6.0)	479773	1435821.9	soil	LF6EX130(6.0)	6.0	0-0.5	Primary	7/7/2005					X			X					Grid: A, 3 - Redwood Zone (location over-excavated)
	LF6EX131(6.0)	479744.3814	1435817.143	soil	LF6EX131(6.0)	6.0	0-0.5	Primary	7/7/2005					X			X					Grid: A, 2 - Redwood Zone
	LF6EX132(9.0)	479727.5135	1435798.247	soil	LF6EX132(9.0)	9.0	0-0.5	Primary	7/7/2005					X			X					Grid: A, 2 - Redwood Zone
	LF6EX133(2.5)	479680.7893	1435774.915	soil	LF6EX133(2.5)	2.5	0-0.5	Primary	7/7/2005					X			X					Grid: A, 1 - Redwood Zone
	LF6EX145(6.0)	479768.1535	1435826.749	soil	LF6EX145(6.0)	6.0	0-0.5	Primary	8/15/2005					X			X					Grid: A, 3 - Redwood Zone (Over-Ex. location LF6EX130)
BOTTOM CONFIRMATION SAMPLING	LF6EX120(21.5)	479705.3766	1435678.236	soil	LF6EX120(21.5)	21.5	0-0.5	Primary	6/29/2005	X	X	X	X	X			X	X	X			Grid: C, 1 - Under storm drain
	LF6EX121(20)	479811.4729	1435722.489	soil	LF6EX121(20)	20.0	0-0.5	Primary	6/29/2005					X			X					Grid: C, 3 - Under storm drain
	LF6EX122(16)	479852.6902	1435733.573	soil	LF6EX122(16)	16.0	0.5-1.0	Primary	6/30/2005					X			X					Grid: C, 3 - Under storm drain (sample of Colma; beneath gravel)
	LF6EX123(12.5)	480026.0469	1435803.968	soil	LF6EX123(12.5)	12.5	0.5-1.0	Primary	7/1/2005					X			X					Grid: C, 6 - Under storm drain
	LF6EX124(10)	479954.5	1435775.06	soil	LF6EX124(10)	10.0	0.5-1.0	Primary	7/1/2005					X			X					Grid: C, 5 - Under storm drain (sample of Colma; beneath gravel)
	LF6EX125(10)	479936.5	1435766.16	soil	LF6EX125(10)	10.0	1.5-2.0	Primary	7/6/2005					X			X					Grid: C, 4 - Adjacent to storm drain
	LF6EX125(10)	479936.5	1435766.16	soil	Dup 070605	10.0	1.5-2.0	Duplicate	7/6/2005					X			X					Grid: C, 4 - Adjacent to storm drain
	LF6EX126(13.0)	479887.1981	1435752.992	soil	LF6EX126(13.0)	13.0	1.5-2.0	Primary	7/6/2005					X			X					Grid: C, 4 - Adjacent to storm drain
	LF6EX127(25.0)	479742.2676	1435696.566	soil	LF6EX127(25.0)	25.0	1.5-2.0	Primary	7/6/2005					X			X					Grid: C, 2 - Adjacent to storm drain

Table 2. Sampling Program Summary
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Area	Station Number	Northing	Easting	Matrix	Sample Number	Sample Depth Below Original Ground Surface (ft)	Sample Depth	Sample Type	Date Sampled	SVOCs (8270C)	VOCs (8260B)	TPHg/BTEX (8015B)	TPHd, Fo (8015B with silica gel cleanup [SW3630A])	Title 22 Metals (6000-7000 Series) or Total metals by GCMS (for water)	Hexavalen Chromium	Cyanide	PCBs (8082)	Pesticides EPA 8081	Chlorinated Herbicides	Phenols	PAHs (by 8270)	NOTES/COMMENTS
BOTTOM CONFIRMATION SAMPLING CONT.	LF6EX128(25.0)	479667.6414	1435677.377	soil	LF6EX128(25.0)	25.0	1.5-2.0	Primary	7/6/2005	X	X	X	X	X			X	X	X			Grid: B, 1 - Adjacent to storm drain
	LF6EX135(24.0)	479644.1358	1435725.073	soil	LF6EX135(24.0)	24.0	0-0.5	Primary	7/20/2005	X	X	X	X	X			X	X	X			Grid: B, 1 - Native Plant Zone
	LF6EX135(24.0)	479644.1358	1435725.073	soil	Dup 072005-1	24.0	0-0.5	Duplicate	7/20/2005	X	X	X	X	X			X	X	X			Grid: B, 1 - Native Plant Zone
	LF6EX136(11.0)	479975.8365	1435794.517	soil	LF6EX136(11.0)	11.0	0-0.5	Primary	7/20/2005	X	X	X	X	X			X	X	X			Grid: C, 5 - Native Plant Zone
	LF6EX136(11.0)	479975.8365	1435794.517	soil	Dup 072005-2	11.0	0-0.5	Duplicate	7/20/2005	X	X	X	X	X			X	X	X			Grid: C, 5 - Native Plant Zone
	LF6EX143(24.5)	479708.2695	1435757.241	soil	LF6EX143(24.5)	24.5	0-0.5	Primary	8/15/2005					X			X					Grid: B, 2 - Native Plant Zone (location over-excavated)
	LF6EX144(23.0)	479778.6156	1435789.024	soil	LF6EX144(23.0)	23.0	0-0.5	Primary	8/15/2005					X			X					Grid: B, 3 - Native Plant Zone
	LF6EX146(16.0)	479841.7747	1435827.391	soil	LF6EX146(16.0)	16.0	0-0.5	Primary	8/15/2005					X			X					Grid: B, 4 - Native Plant Zone
	LF6EX148(25.5)	479708.2695	1435758.9738	soil	LF6EX148(25.5)	25.5	0-0.5	Primary	8/23/2005					X			X					Grid: B, 2 - Native Plant Zone (Over-Ex. location LF6EX143(24.5)
	LF6EX148(25.5)	479708.2695	1435758.9738	soil	Dup 082305	25.5	0-0.5	Duplicate	8/15/2005					X								Grid: B, 2 - Native Plant Zone (Over-Ex. location LF6EX143(24.5)
	LF6EX151(6.5)	479672.3646	1435824.477	soil	LF6EX151(6.5)	6.5	0-0.5	Primary	8/25/2005					X			X					Grid: A, 2 - Ecological LUC Zone
	LF6EX153(2.0)	479732.0455	1435865.8959	soil	LF6EX153(2.0)	2.0	0-0.5	Primary	8/25/2005					X			X					Grid: A, 3 - Ecological LUC Zone
	LF6EX154(10.0)	479606.4196	1435789.854	soil	LF6EX154(10.0)	10.0	0-0.5	Primary	9/15/2005					X			X					Grid: A, 1 - Ecological LUC Zone
	LF6EX155(7.0)	479737.8613	1435858.773	soil	LF6EX155(7.0)	7.0	0-0.5	Primary	9/15/2005					X			X					Grid: A, 3 - Ecological LUC Zone (Over-Ex of location LF6EX153(2.0)
	LF6EX157(5.5)	479805.4033	1435894.353	soil	LF6EX157(5.5)	5.5	0-0.5	Primary	9/15/2005					X			X					Grid: A, 4 - Ecological LUC Zone
	LF6EX160(28.0)	479715.7498	1435774.24	soil	LF6EX160(28.0)	28.0	0-0.5	Primary	10/18/2005					X								Grid: A, 2 - Native Plant Zone-collected as part of over excavation at LF6EX143
	LF6EX161(27.5)	479695.3171	1435751.63	soil	LF6EX161(27.5)	27.5	0-0.5	Primary	10/18/2005					X								Grid: B, 1 - Native Plant Zone-collected as part of over excavation at LF6EX143
	LF6EX162(21.5)	479699.517	1435775.204	soil	LF6EX162(21.5)	21.5	0-0.5	Primary	10/18/2005					X								Grid: A, 2 - Native Plant Zone-collected as part of over excavation at LF6EX143
	LF6EX163(27.5)	479715.357	1435746.254	soil	LF6EX163(27.5)	27.5	0-0.5	Primary	10/18/2005					X								Grid: B, 2 - Native Plant Zone-collected as part of over excavation at LF6EX143
PESTICIDE BUILDING CONFIRMATION SAMPLING	LF6EX117(7.0)	479635.3879	1435837.458	soil	LF6EX117(7)	7.0	0.5-1.0	Primary	6/27/2005									X				Ecological LUC Zone
	LF6EX118(15.5)	479600.1999	1435701.505	soil	LF6EX118(15.5)	15.5	0.5-1.0	Primary	6/28/2005									X				Building Foundation LUC Zone
	LF6EX119(7.0)	479677.8227	1435869.433	soil	LF6EX119(7)	7.0	0.5-1.0	Primary	6/28/2005									X				Ecological LUC Zone
	LF6EX164(8.0)	479581.239	1435815.53	soil	LF6EX164(8.0)	8.0	0.5-1.0	Primary	10/18/2005									X				Ecological LUC Zone
PETROLEUM CONTINGENCY SAMPLING	LF6EX129(20.0)	479655.9155	1435855.013	soil	LF6EX129(20.0)	20.0	1.5-2.0	Primary	7/7/2005	X	X		X	X			X					Ecological LUC Zone - bottom
	LF6EX139(7.5)	479672.7509	1435863.305	soil	LF6EX139(7.5)	7.5	0.5-1.0	Primary	7/21/2005				X								X	Ecological LUC Zone - sidewall
	LF6EX140(5.0)	479698.9806	1435843.883	soil	LF6EX140(5.0)	5.0	0.5-1.0	Primary	7/21/2005				X								X	Ecological LUC Zone - sidewall
	LF6EX141(8.0)	479678.1207	1435827.767	soil	LF6EX141(8.0)	8.0	0.5-1.0	Primary	7/21/2005				X								X	Ecological LUC Zone - sidewall
	LF6EX142(15.0)	479647.7603	1435833.965	soil	LF6EX142(15.0)	15	0.5-1.0	Primary	7/21/2005				X								X	Ecological LUC Zone - sidewall
	LF6EX142(15.0)	479647.7603	1435833.965	soil	Dup 072105	15	0.5-1.0	Duplicate	7/21/2005				X								X	Ecological LUC Zone - sidewall
IMPORTED BACKFILL SOILS	LF6SS301	NA	NA	soil	LF6SS301	NA	NA	Primary	10/21/2005			X	X	X			X	X				Imported Colma from FS6A east of redwoods
	LF6SS302	NA	NA	soil	LF6SS302	NA	NA	Primary	10/21/2005			X	X	X			X	X				Sand from the stockpile at Golden Gate Park site
	LF6SS303	NA	NA	soil	LF6SS303	NA	NA	Primary	10/26/2005			X	X	X				X				Dust Bowl Stockpile
	LF6SS304	NA	NA	soil	LF6SS304	NA	NA	Primary	10/26/2005			X	X	X				X				Sample collected from imported backfill placed in Landscape Zone
	LF6SS305	NA	NA	soil	LF6SS305	NA	NA	Primary	10/26/2005			X	X	X								Trust collected sample from Golden Gate Park borrow source
	LF6SS306	NA	NA	soil	LF6SS306	NA	NA	Primary	11/1/2005				X	X								Sample collected from imported backfill placed in inlet structure
	P25055	NA	NA	soil	P25055	NA	NA	Primary	2004			X	X	X								S&S trucking sample, sample from Golden Gate Park (results in Appendix L) - GA-9
	GA9SS-COMP501-504	NA	NA	soil	GA9SS-COMP501-504	NA	NA	Primary	2004			X	X	X								Geologica letter report GA-stockpile sampling and testing (results in Appendix L) - GA-9
	DUP073004-COMP501-504	NA	NA	soil	DUP073004-COMP501-504	NA	NA	Duplicate	2004			X	X	X								Geologica letter report GA-stockpile sampling and testing (results in Appendix L) - GA-9
	GA9SS-COMP505-508	NA	NA	soil	GA9SS-COMP505-508	NA	NA	Primary	2004			X	X	X								Geologica letter report GA-stockpile sampling and testing (results in Appendix L) - GA-9
STOCKPILE CHARACTERIZATION FOR OFFHAUL	LF6SP100	NA	NA	soil	LF6SP100	NA	NA	Primary	6/28/2005				X	X			X					Storm Drain Backfill Stockpile Material (from above the storm drain)
	LF6SP101	NA	NA	soil	LF6SP101	NA	NA	Primary	6/29/2005				X	X			X					Storm Drain Backfill Stockpile Material (from above the storm drain)
	LF6SP102	NA	NA	soil	LF6SP102	NA	NA	Primary	7/1/2005				X	X			X					Stockplie Soils Pile from Storm Drain Excavation (from below the storm drain)
	LF6SP103	NA	NA	soil	LF6SP103	NA	NA	Primary	6/30/2005					X			X					Mix of Concrete and Soil from East Side of Site. Also analyzed for STLC & TCLP Lead.
	LF6SP104	NA	NA	soil	LF6SP104	NA	NA	Primary	7/7/2005					X			X					Soil from east side of Redwoods
	LF6SP105	NA	NA	soil	LF6SP105	NA	NA	Primary	7/7/2005				X	X			X					Potential sand source (California Academy of Sciences)
	LF6SP107	NA	NA	soil	LF6SP107	NA	NA	Primary	7/15/2005				X	X								Pacific States Concrete Rubble. Also analyzed for STLC & TCLP Lead.
	LF6SP108	NA	NA	soil	LF6SP108	NA	NA	Primary	7/22/2005				X	X								Pacific States Concrete Rubble and Soil. Also analyzed for TCLP Lead.

Table 2. Sampling Program Summary
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Area	Station Number	Northing	Easting	Matrix	Sample Number	Sample Depth Below Original Ground Surface (ft)	Sample Depth	Sample Type	Date Sampled	SVOCs (8270C)	VOCs (8260B)	TPHg/BTEX (8015B)	TPHd, Fo (8015B with silica gel cleanup (SW3630A))	Title 22 Metals (6000-7000 Series) or Total metals by GCMS (for water)	Hexavalen Chromium	Cyanide	PCBs (8082)	Pesticides EPA 8081	Chlorinated Herbicides	Phenols	PAHs (by 8270)	NOTES/COMMENTS
STOCKPILE CHARACTERIZATION FOR OFFHAUL CONT.	LF6SP109-F	NA	NA	soil	LF6SP109-F	NA	NA	Primary	11/17/2005				X	X			X	X				Monitoring Well Spoils. Also analyzed for TCLP Lead.
	LF6SP109-C	NA	NA	soil	LF6SP109-C	NA	NA	Primary	11/17/2005				X	X			X	X				Monitoring Well Spoils. Also analyzed for TCLP Lead.
FRAK TANK WATER	LF6WW200	NA	NA	water	LF6WW200	NA	NA	Primary	6/24/2005				X	X		X				X		Results compared to wastewater permit and water discharged to sanitary sewer on 6/28/05
	LF6WW203	NA	NA	water	LF6WW203	NA	NA	Primary	7/14/2005					X								Post accidental release of water
	LF6WW205	NA	NA	water	LF6WW205	NA	NA	Primary	7/15/2005			X	X	X			X					Post accidental release of water
WATER IN BERMED AREA, OR STORM PIPE EXCAVATION TRENCH	LF6WW201	NA	NA	water	LF6WW201	NA	NA	Primary	7/6/2005				X	X		X	X			X		Tested for post accidental release of bermed water
	LF6WW204	NA	NA	water	LF6WW204	NA	NA	Primary	7/15/2005			X	X	X			X					Tested for post accidental release of bermed water
	LF6WW207	NA	NA	water	LF6WW207	NA	NA	Primary	7/15/2005			X	X	X			X					Tested for post accidental release of bermed water
	LF6SW208	NA	NA	water	LF6WW208	NA	NA	Primary	10/18/2005				X	X	X							Sample collected from seep along SE bank of stream
	LF6SW209	NA	NA	water	Dup101805	NA	NA	Duplicate	10/18/2005				X	X	X							Sample collected from seep along SE bank of stream
	LF6SW209	NA	NA	water	LF6WW209	NA	NA	Primary	10/18/2005				X	X	X							Sample collected from seep along SE bank of stream
WATER IN BERMED AREA AND SEDIMENT IN STORM DRAIN OUTLET	LF6SW202	NA	NA	water	LF6SW202	NA	NA	Primary	7/14/2005					X								Tested for post accidental release of bermed water
	LF6SW206	NA	NA	water	LF6SW206	NA	NA	Primary	7/22/2005			X	X	X			X					Tested for post accidental release of bermed water
	LF6SW206	NA	NA	water	Dup072205	NA	NA	Duplicate	7/22/2005			X	X	X			X					Tested for post accidental release of bermed water
	LF6SP106	NA	NA	sediment	LF6SP106	NA	NA	Primary	6/28/2005				X	X								Sediment from storm drain outlet

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Table 3. Definition of Qualifiers
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Summary of Analyte Qualifiers Used in this Report

Qualifiers are listed as validation qualifier / lab qualifier where applicable (e.g. J/J+)

Type	Qualifier	Qualifier Description
Inorganic/ Organic	J	Data are qualified as estimated. It is not possible to assess the direction of the potential bias. False positives or false negatives are unlikely to have been reported.
Inorganic/ Organic	J-	Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
Inorganic/ Organic	J+	Data are qualified as estimated, with a high bias likely to occur. False positives or false negatives are unlikely to have been reported.
Inorganic/ Organic	U	Data are qualified as nondetected, because the analyte was observed in an associated laboratory or field blank.
Inorganic/ Organic	UJ	The analyte was not detected above the reported sample quantization limit. However, the reported quantization limit is approximate and may or may not represent the actual limit of quantization necessary to accurately and precisely measure the analyte in the sample.
Inorganic/ Organic	C	Presence confirmed, but RPD between columns exceeds 40%.
Inorganic/ Organic	b	Analytical problems were encountered. See the associated case narrative in data package from lab.
Inorganic/ Organic	H	Heavier hydrocarbons contributed to the quantification.
Inorganic/ Organic	L	Lighter hydrocarbons contributed to the quantification.
Inorganic/ Organic	Y	Sample exhibits chromatographic pattern which does not resemble standard.
Inorganic/ Organic	YZ	Indicates that quantization is based only on a single peak or peaks and that the chromatogram does not resemble a fuel pattern.
Inorganic/ Organic	Z	Indicates that the chromatogram resembles the requested standard, but includes a single peak that significantly biases the quantization.

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Table 4. Detected Organic Compounds in Confirmation Soil Sample - Native Plant Zone

Construction Completion Report, Fill Site 6A Remediation

Presidio of San Francisco, California

			Aroclor 1254 (mg/kg)		Aroclor 1260 (mg/kg)		Total PCBs[2] mg/kg		TPH Fuel Oil (C24-C36) (mg/kg)		TPH, Diesel (C12-C24) (mg/kg)	
	Cleanup Levels (mg/kg)		0.033[1]		0.033[1]		0.033[1]		144		144	
Station Name	Sample Number (depth)	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
LF6EX103	LF6EX103(3.0)	08/15/05	ND(0.013)		ND(0.013)		ND(0.013)		NT		NT	
LF6EX104	LF6EX104(2.0)	06/16/05	ND(0.011)		0.016		0.016		NT		NT	
LF6EX105	LF6EX105(1.0)	06/16/05	ND(0.011)		0.027		0.027		NT		NT	
LF6EX106	LF6EX106(1.0)	06/16/05	ND(0.010)		ND(0.010)		ND(0.010)		NT		NT	
LF6EX107	LF6EX107(0.5)	06/16/05	0.016		0.019		0.035		NT		NT	
LF6EX108[3]	LF6EX108(3.0)	06/16/05	0.260		0.045		0.305		NT		NT	
LF6EX110	LF6EX110(1.0)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX111[3]	LF6EX111(2.0)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		190.	J+	31.	/HY
LF6EX112	LF6EX112(1.5)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX113	LF6EX113(1.0)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX114	LF6EX114(2.0)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX115	LF6EX115(2.0)	06/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX116	LF6EX116(2.5)	06/23/05	ND(0.010)		ND(0.010)		ND(0.010)		NT		NT	
LF6EX118	LF6EX118(15.5)	06/27/05	NT		NT		NT		NT		NT	
LF6EX120	LF6EX120(21.5)	06/28/05	ND(0.011)		ND(0.011)		ND(0.011)		75.	/L	54.	/H
LF6EX121	LF6EX121(20)	06/29/05	ND(0.012)		ND(0.012)		ND(0.012)		NT		NT	
LF6EX122	LF6EX122(16)	06/30/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX123	LF6EX123(12.5)	06/30/05	ND(0.012)		ND(0.012)		ND(0.012)		NT		NT	
LF6EX124	LF6EX124(10)	07/01/05	ND(0.012)		ND(0.012)		ND(0.012)		NT		NT	
LF6EX125	DUP070605	07/06/05	ND(0.010)		ND(0.010)		ND(0.010)		NT		NT	
	LF6EX125(10.0)	07/06/05	ND(0.010)		ND(0.010)		ND(0.010)		NT		NT	
LF6EX126	LF6EX126(13.0)	07/06/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX127	LF6EX127(25.0)	07/06/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX128	LF6EX128(25.0)	07/06/05	ND(0.011)		ND(0.011)		ND(0.011)		ND(5.9)		NT	
LF6EX133	LF6EX133(2.5)	07/07/05	ND(0.010)		ND(0.010)		ND(0.010)		NT		NT	
LF6EX134[3]	LF6EX134(2.5)	07/20/05	ND(0.011)		0.050		0.050		NT		NT	
LF6EX135	DUP072005-1	07/20/05	ND(0.012)		ND(0.012)		ND(0.012)		ND(6.1)		NT	
	LF6EX135(24.0)	07/20/05	ND(0.012)		ND(0.012)		ND(0.012)		ND(6.0)		NT	
LF6EX136	DUP072005-2	07/20/05	ND(0.011)		ND(0.011)		ND(0.011)		ND(5.9)		NT	
	LF6EX136(11.0)	07/20/05	ND(0.012)		ND(0.012)		ND(0.012)		ND(6.0)		NT	
LF6EX137	LF6EX137(4.0)	07/20/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX138	LF6EX138(3.0)	07/20/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX143[3]	LF6EX143(24.5)	08/15/05	ND(0.014)		ND(0.014)		ND(0.014)		NT		NT	
LF6EX144	LF6EX144(23.0)	08/15/05	ND(0.014)		ND(0.014)		ND(0.014)		NT		NT	
LF6EX146	LF6EX146(16.0)	08/15/05	ND(0.015)		ND(0.015)		ND(0.015)		NT		NT	
LF6EX148	DUP082305	08/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
	LF6EX148(25.5)	08/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX149	LF6EX149(5.0)	08/23/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	
LF6EX150	LF6EX150(5.0)	08/25/05	ND(0.011)		ND(0.011)		ND(0.011)		NT		NT	

Footnotes: (1) Cleanup level is for Archlor 1254; no developed cleanup level for Archlor 1260 or total PCBs (2) Results presented are the sum of reported concentrations of Aroclor 1254 and Aroclor 1260; presented for comparison to the cleanup level. (3) Samples that were over-excavated; Results exceeding cleanup levels are outlined with a box; ND = Not Detected at the specific reporting level in parentheses; NT = Not Tested; Qualifiers are presented in Table 10.

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Table 5. Detected Inorganic Compounds in Confirmation Soil Sample - Native Plant Zone
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Station Name	Sample Number (depth)	Sample Date	Antimony (mg/kg) Value	Qual	Arsenic (mg/kg) Value	Qual	Barium (mg/kg) Value	Qual	Beryllium (mg/kg) Value	Qual	Cadmium (mg/kg) Value	Qual	Chromium (mg/kg) Value	Qual	Cobalt (mg/kg) Value	Qual	Copper (mg/kg) Value	Qual
Cleanup Level (mg/kg)			5		6.2		320		10		0.8		140		21		49	
LF6EX103	LF6EX103(3.0)	08/15/05	ND(3.3)	UJ	4.0		75.		0.45	J	0.61		99.		12.		14.	
LF6EX104	LF6EX104(2.0)	06/16/05	ND(2.6)	UJ	4.2		94.	J-	0.33	J	0.76		53.	J-	8.8		25.	
LF6EX105	LF6EX105(1.0)	06/16/05	ND(3.0)	UJ	4.1		120.	J-	0.41	J	0.71		71.	J-	16.		26.	
LF6EX106	LF6EX106(1.0)	06/16/05	ND(3.5)	UJ	2.9		160.	J-	0.52	J	0.48		39.	J-	16.		63.	
LF6EX107	LF6EX107(0.5)	06/16/05	ND(2.8)	UJ	4.0		160.	J-	0.51	J	0.61		48.	J-	13.		41.	
LF6EX108[1]	LF6EX108(3.0)	06/16/05	ND(3.0)	UJ	3.5		71.	J-	0.31	J	0.47		73.	J-	12.		11.	
LF6EX110	LF6EX110(1.0)	06/23/05	ND(3.6)	UJ	6.0	J	120.		0.59	J	1.1		130.	J-	15.		24.	
LF6EX111[1]	LF6EX111(2.0)	06/23/05	ND(2.6)	UJ	5.1	J	200.		0.51	J	1.1		83.		16.		65.	
LF6EX112	LF6EX112(1.5)	06/23/05	ND(3.2)	UJ	4.4	J	170.		0.51	J	0.86		65.		14.		32.	
LF6EX113	LF6EX113(1.0)	06/23/05	ND(3.5)	UJ	1.7	J	46.		0.25	J	0.53		81.		10.		6.7	
LF6EX114	LF6EX114(2.0)	06/23/05	ND(3.0)	UJ	4.2	J	130.		0.37	J	0.78		66.		11.		24.	
LF6EX115	LF6EX115(2.0)	06/23/05	ND(2.5)	UJ	3.8	J	87.		0.39	J	0.59		100.		8.2		12.	
LF6EX116	LF6EX116(2.5)	06/23/05	ND(2.8)	UJ	3.7	J	42.		0.25	J	0.40		47.		6.6		14.	
LF6EX118	LF6EX118(15.5)	06/27/05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX120	LF6EX120(21.5)	06/28/05	ND(0.20)		4.3		70.1		0.22		ND(0.098)		77.4		11.3		8.2	
LF6EX121	LF6EX121(20)	06/29/05	3.9	J-	1.4		70.	J-	0.26		0.52		84.		6.6		7.2	
LF6EX122	LF6EX122(16)	06/30/05	ND(3.5)		1.7		47.		0.17		0.49		80.		8.0		8.3	
LF6EX123	LF6EX123(12.5)	06/30/05	ND(3.5)		1.9		46.		0.20		0.62		65.		10.		8.3	
LF6EX124	LF6EX124(10)	07/01/05	ND(3.4)		2.5		67.		0.27		0.62		69.		12.		13.	
LF6EX125	DUP070605	07/06/05	ND(3.3)		4.3		76.		0.22		0.78		54.		7.1		22.	
	LF6EX125(10.0)	07/06/05	3.2		3.9		64.		0.22		0.62		33.		5.8		20.	
LF6EX126	LF6EX126(13.0)	07/06/05	ND(3.1)		4.2		100.		0.48		1.2		69.		11.		18.	
LF6EX127	LF6EX127(25.0)	07/06/05	ND(3.8)		3.2		360.		0.38		0.96		110.		9.4		8.1	
LF6EX128	LF6EX128(25.0)	07/06/05	ND(3.2)		4.1		93.		0.46		1.4		110.		11.		11.	
LF6EX133	LF6EX133(2.5)	07/07/05	ND(3.2)		5.4		65.		0.40		1.2		87.		10.		11.	
LF6EX134[1]	LF6EX134(2.5)	07/20/05	ND(3.2)		3.3		64.		0.24		0.79		75.		9.6		8.9	
LF6EX135	DUP072005-1	07/20/05	ND(3.1)		3.2		57.		0.34		0.84		80.		8.6		6.6	
	LF6EX135(24.0)	07/20/05	ND(3.2)		3.2		57.		0.31		0.87		85.		7.9		6.7	
LF6EX136	DUP072005-2	07/20/05	ND(2.7)		3.2		58.		0.34		0.92		130.		6.6		5.9	
	LF6EX136(11.0)	07/20/05	ND(3.0)		1.8		52.		0.27		0.90		110.		12.		5.1	
LF6EX137	LF6EX137(4.0)	07/20/05	ND(3.1)		11.		65.		0.33		1.1		65.		11.		31.	
LF6EX138	LF6EX138(3.0)	07/20/05	ND(3.5)		3.3		120.		0.34		1.0		90.		13.		21.	
LF6EX143[1]	LF6EX143(24.5)	08/15/05	16.	J-	32.		91.		2.6	J	5.7		130.		89.		150.	
LF6EX144	LF6EX144(23.0)	08/15/05	ND(2.8)		2.6		99.		0.47	J	0.55		110.		9.7		11.	
LF6EX146	LF6EX146(16.0)	08/15/05	ND(3.2)		2.0		36.		0.21	J	ND(0.27)		69.		9.4		4.5	
LF6EX148	DUP082305	08/23/05	ND(3.4)		2.2		86.		0.36		0.79		91.		7.0		8.9	
	LF6EX148(25.5)	08/23/05	ND(3.3)		2.6		87.		0.40		0.80		100.		6.7		11.	
LF6EX149	LF6EX149(5.0)	08/23/05	ND(3.3)		0.91		39.		0.13		0.55		69.		8.7		3.9	
LF6EX150	LF6EX150(5.0)	08/25/05	ND(3.4)		2.5		80.		0.25		0.76		80.		12.		13.	
LF6EX160	LF6EX160(28.0)	10/18/05	3.6	UJ	4.2		71.		0.29		0.97		89.		18.		9.0	
LF6EX161	LF6EX161(27.5)	10/18/05	4.2	UJ	1.8		90.		0.18		0.87		97.		12.		7.7	
LF6EX162	LF6EX162(21.5)	10/18/05	3.1	UJ	3.1		78.		0.26		0.86		120.		6.6		9.0	
LF6EX163	LF6EX163(27.5)	10/18/05	3.3	UJ	6.0		74.		0.32		1.5		290.		12.		13.	

Station Name	Sample Number (depth)	Sample Date	Lead (mg/kg) Value	Qual	Mercury (mg/kg) Value	Qual	Molybdenum (mg/kg) Value	Qual	Nickel (mg/kg) Value	Qual	Selenium (mg/kg) Value	Qual	Silver (mg/kg) Value	Qual	Thallium (mg/kg) Value	Qual	Vanadium (mg/kg) Value	Qual	Zinc (mg/kg) Value	Qual
Cleanup Level (mg/kg)			160		0.4		12		110		0.5		2		1		90		60	
LF6EX103	LF6EX103(3.0)	08/15/05	25.	J+	0.031		ND(1.1)		71.		0.40		ND(0.28)		ND(0.28)		66.		34.	
LF6EX104	LF6EX104(2.0)	06/16/05	150.		0.32		ND(0.85)		46.	J-	0.68		ND(0.21)		ND(0.21)		39.		180.	
LF6EX105	LF6EX105(1.0)	06/16/05	140.		0.18		ND(1.0)		54.	J-	1.0		ND(0.21)		ND(0.25)		53.		94.	
LF6EX106	LF6EX106(1.0)	06/16/05	33.		0.083		ND(1.2)		34.	J-	0.56		ND(0.21)		ND(0.29)		37.		58.	
LF6EX107	LF6EX107(0.5)	06/16/05	78.		0.11		ND(0.95)		50.	J-	0.59		ND(0.21)		ND(0.24)		44.		81.	
LF6EX108[1]	LF6EX108(3.0)	06/16/05	16.		0.17		ND(0.99)		71.	J-	0.48		ND(0.21)		ND(0.25)		49.		41.	
LF6EX110	LF6EX110(1.0)	06/23/05	35.	J-J	0.022		ND(1.2)		140.		ND(0.30)		ND(0.21)		ND(0.30)		73.	J-	57.	J-
LF6EX111[1]	LF6EX111(2.0)	06/23/05	220.	J-J	0.069		ND(0.86)		60.		ND(0.22)		ND(0.21)		ND(0.22)		55.	J-	43.	J-
LF6EX112	LF6EX112(1.5)	06/23/05	27.	J-J	0.16		ND(1.1)		51.		ND(0.27)		ND(0.21)		ND(0.27)		63.	J-	59.	J-
LF6EX113	LF6EX113(1.0)	06/23/05	2.9	J-J	ND(0.022)		ND(1.2)		62.		ND(0.29)		ND(0.21)		ND(0.29)		51.	J-	28.	J-
LF6EX114	LF6EX114(2.0)	06/23/05	150.	J-J	0.17		ND(1.0)		49.		ND(0.25)		ND(0.21)		ND(0.25)		47.	J-	110.	J-
LF6EX115	LF6EX115(2.0)	06/23/05	5.0	J-J	0.061		ND(1.0)		59.		0.68		ND(0.21)		ND(0.21)		58.	J-	31.	J-
LF6EX116	LF6EX116(2.5)	06/23/05	11.	J-J	0.022		ND(1.0)		29.		0.63		ND(0.21)		ND(0.23)		42.	J-	29.	J-
LF6EX118	LF6EX118(15.5)	06/27/05	NT		NT		ND(1.0)		NT		NT		ND(0.21)		NT		NT		NT	
LF6EX120	LF6EX120(21.5)	06/28/05	21.4		0.041		ND(1.0)		55.8		ND(0.20)		ND(0.21)		ND(0.098)		39.2		33.4	
LF6EX121	LF6EX121(20)	06/29/05	3.1		ND(0.018)		ND(1.0)		82.		ND(0.26)		ND(0.21)		ND(0.26)		49.		24.	
LF6EX122	LF6EX122(16)	06/30/05	5.2		ND(0.019)		ND(1.0)		65.		0.65		ND(0.21)		ND(0.29)		43.		25.	
LF6EX123	LF6EX123(12.5)	06/30/05	3.3		0.041		ND(1.0)		54.		ND(0.29)		ND(0.21)		ND(0.29)		45.		29.	
LF6EX124	LF6EX124(10)	07/01/05	28.		ND(0.019)		ND(1.0)		50.		0.41		ND(0.21)		ND(0.28)		52.		52.	
LF6EX125	DUP070605	07/06/05	56.	J-	0.17		ND(1.0)		40.		0.93		ND(0.21)		ND(0.27)		30.		130.	
	LF6EX125(10.0)	07/06/05	160.	J-	0.084		ND(1.0)		28.		0.86		ND(0.21)		ND(0.20)		23.		92.	
LF6EX126	LF6EX126(13.0)	07/06/05	21.	J-	0.085		ND(1.0)		36.		1.4		ND(0.21)		ND(0.26)		56.		42.	
LF6EX127	LF6EX127(25.0)	07/06/05	2.9	J-	ND(0.018)		ND(1.0)		80.		1.1		ND(0.21)		ND(0.32)		50.		27.	
LF6EX128	LF6EX128(25.0)	07/06/05	3.5	J-	0.026		ND(1.0)		95.		1.7		ND(0.21)		ND(0.27)		64.		31.	
LF6EX133	LF6EX133(2.5)	07/07/05	6.5	J-	ND(0.018)		ND(1.0)		60.		1.5		ND(0.21)		ND(0.26)		55.		33.	
LF6EX134[1]	LF6EX134(2.5)	07/20/05	14.		0.044		ND(1.0)		56.		ND(0.27)		ND(0.21)		ND(0.27)		53.	J+	36.	
LF6EX135	DUP072005-1	07/20/05	3.1		ND(0.026)		ND(1.0)		51.		ND(0.26)		ND(0.21)		ND(0.26)		61.	J+	27.	
	LF6EX135(24.0)	07/20/05	3.1		ND(0.018)		ND(1.0)		48.		ND(0.27)		ND(0.21)		ND(0.27)		66.	J+	28.	
LF6EX136	DUP072005-2	07/20/05	3.4		ND(0.018)		ND(1.0)		71.		ND(0.23)		ND(0.21)		ND(0.23)		70.	J+	30.	
	LF6EX136(11.0)	07/20/05	3.1		ND(0.022)		ND(1.0)		72.		ND(0.25)		ND(0.21)		ND(0.25)		64.	J+	28.	
LF6EX137	LF6EX137(4.0)	07/20/05	23.		0.051		ND(1.0)		50.		ND(0.26)		ND(0.21)		ND(0.26)		58.	J+	49.	
LF6EX138	LF6EX138(3.0)	07/20/05	10.		0.03		ND(1.0)		67.		ND(0.29)		ND(0.21)		ND(0.29)		71.	J+	42.	
LF6EX143[1]	LF6EX143(24.5)	08/15/05	50.	J+	0.039		ND(1.0)		960.		ND(0.31)		ND(0.21)		ND(0.31)		680.		33.	
LF6EX144	LF6EX144(23.0)	08/15/05	3.7	J+	0.057		ND(1.0)		74.		ND(0.23)		ND(0.21)		ND(0.23)		64.		30.	
LF6EX146	LF6EX146(16.0)	08/15/05	2.3	J+	0.069		ND(1.0)		60.		ND(0.27)		ND(0.21)		ND(0.27)		34.		17.	
LF6EX148	DUP082305	08/23/05	4.3		ND(0.028)		ND(1.0)		73.		0.52		ND(0.21)		ND(0.28)		60.		31.	
	LF6EX148(25.5)	08/23/05	4.4		ND(0.031)		ND(1.0)		72.		0.40		ND(0.21)		ND(0.28)		67.		30.	
LF6EX149	LF6EX149(5.0)	08/23/05	2.3		ND(0.028)		ND(1.0)		58.		0.82		ND(0.21)		ND(0.28)		46.		25.	
LF6EX150	LF6EX150(5.0)	08/25/05	20.		0.043		ND(1.0)		71.		1.3		ND(0.21)		ND(0.28)		56.		51.	
LF6EX160	LF6EX160(28.0)	10/18/05	3.2		ND(0.026)		ND(1.2)		80.		ND(0.30)		ND(0.30)		ND(0.30)		65.		28.	
LF6EX161	LF6EX161(27.5)	10/18/05	3.2		ND(0.023)		ND(1.4)		93.		ND(0.35)		ND(0.35)		ND(0.35)		57.		39.	
LF6EX162	LF6EX162(21.5)	10/18/05	3.6		ND(0.029)		ND(1.0)		60.		ND(0.26)		ND(0.26)		ND(0.26)		57.		28.	
LF6EX163	LF6EX163(27.5)	10/18/05	4.1		0.025		ND(1.1)		140.		ND(0.28)		ND(0.28)		ND(0.28)		120.		41.	

Notes:

1 - Samples that were over-excavated

Results exceeding cleanup levels are outlined with a box.

Qualifiers are presented in Table 10

ND = Not Detected at the specific reporting level in parentheses.

NT = Not Tested

Checked GAL

Approved MAJ

Table 6. Detected Organic Compounds in Confirmation Soil Sample - Landscape Zone
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

			4,4'-DDT mg/kg		4,4'-DDE mg/kg		alpha-Chlordane mg/kg		gamma-Chlordane mg/kg		Chlordane[2] mg/kg		Aroclor 1254 mg/kg		Aroclor 1260 mg/kg		Total PCBs[4] mg/kg		Dieldrin mg/kg		TPH Fuel Oil (C24-C36) mg/kg		TPH, Diesel (C10-C24) mg/kg	
Cleanup Levels (mg/kg)			0.53		0.61		0.04[1]		0.04[1]		0.04[1]		0.16[3]		0.16[3]		0.16[3]		0.03		980		700	
Station Name	Sample Number (depth)	Sample Date	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
LF6EX100	DUP092905-1	29-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
	LF6EX100(6.5)	29-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX101	DUP092905-2	29-Sep-05	NT		NT		NT		NT		NT		ND(0.01)		ND(0.01)		ND(0.01)		NT		NT		NT	
	LF6EX101(1.0)	29-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX102	LF6EX102(3.0)	16-Jun-05	NT		NT		NT		NT		NT		ND(0.01)		ND(0.01)		ND(0.01)		NT		NT		NT	
LF6EX109	LF6EX109(0.5)	16-Jun-05	NT		NT		NT		NT		NT		0.02		ND(0.01)		0.02		NT		NT		NT	
LF6EX117	LF6EX117(7)	27-Jun-05	ND(0.0041)		ND(0.0041)		ND(0.0021)		ND(0.0021)		ND(0.0021)		NT		NT		NT		ND(0.0041)		NT		NT	
LF6EX119	LF6EX119(7)	28-Jun-05	ND(0.0039)	UJ	ND(0.0039)		ND(0.002)		ND(0.002)		ND(0.002)		NT		NT		NT		ND(0.0039)		NT		NT	
LF6EX129	LF6EX129(20.0)	07-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		33.		8.2	/HY
LF6EX130[5]	LF6EX130(6.0)	07-Jul-05	NT		NT		NT		NT		NT		ND(0.01)		0.049		0.049		NT		NT		NT	
LF6EX131	LF6EX131(6.0)	07-Jul-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX132	LF6EX132(9.0)	07-Jul-05	NT		NT		NT		NT		NT		ND(0.01)		ND(0.01)		ND(0.01)		NT		NT		NT	
LF6EX139	LF6EX139(7.5)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		ND(5.6)		ND(1.1)	
LF6EX140	LF6EX140(5.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		ND(5.5)		ND(1.1)	
LF6EX141	LF6EX141(8.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		ND(5.7)		ND(1.1)	
LF6EX142	DUP072105	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		ND(5.6)		ND(1.1)	
	LF6EX142(15.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT		ND(5.8)		ND(1.2)	
LF6EX145	LF6EX145(6.0)	15-Aug-05	NT		NT		NT		NT		NT		ND(0.014)		ND(0.014)		ND(0.014)		NT		NT		NT	
LF6EX147[5]	LF6EX147(1.0)	15-Aug-05	NT		NT		NT		NT		NT		0.11	J+	0.067	J+	0.177	J+	NT		NT		NT	
LF6EX151	LF6EX151(6.5)	25-Aug-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX152	LF6EX152(1.5)	25-Aug-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX153[5]	LF6EX153(2.0)	25-Aug-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX154	LF6EX154(10.0)	15-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX155	LF6EX155(7.0)	15-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX156	LF6EX156(2.0)	15-Sep-05	NT		NT		NT		NT		NT		ND(0.01)		ND(0.01)		ND(0.01)		NT		NT		NT	
LF6EX157	LF6EX157(5.5)	15-Sep-05	NT		NT		NT		NT		NT		ND(0.011)		ND(0.011)		ND(0.011)		NT		NT		NT	
LF6EX158	LF6EX158(1.0)	15-Sep-05	NT		NT		NT		NT		NT		ND(0.01)		ND(0.01)		ND(0.01)		NT		NT		NT	
LF6EX159	LF6EX159(1.0)	29-Sep-05	0.019	J-	0.0066	J-	0.0017	J-/CJ	0.0017		0.0034		ND(0.011)		ND(0.011)		ND(0.011)		0.0069	J-	32.		4.3	/HY

Footnotes: (1) Cleanup level for total chlordane; (2) Results presented are the sum of reported concentrations of alpha and gamma-chlordane; presented for comparison to the cleanup level.
(3) Cleanup level is for Archlor 1254; no developed cleanup level for Archlor 1260 or total PCBs (4) Results presented are the sum of reported concentrations of Aroclor 1254 and Aroclor 1260; presented for comparison to the cleanup level.
(5) Samples that were over-excavated

Results exceeding cleanup levels are outlined with a box.
Qualifiers are presented in Table 10.
ND = Not Detected at the specific reporting level in parentheses.
NT = Not Tested

Checked GAL

Approved MGJ

Table 7. Detected Inorganic Compounds in Confirmation Soil Sample - Landscape Zone
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Station Name	Sample Number (depth)	Sample Date	Antimony mg/kg		Arsenic mg/kg		Barium mg/kg		Beryllium mg/kg		Cadmium mg/kg		Chromium mg/kg		Cobalt mg/kg		Copper mg/kg	
Cleanup Level (mg/kg)			5		6.2		500		10		0.8		140		48		120	
			Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
LF6EX100	DUP092905-1	29-Sep-05	ND(3.7)	UJ	5.0	J	130.		0.41		0.99		71.		13.		13.	
	LF6EX100(6.5)	29-Sep-05	ND(3.0)	UJ	5.3	J	110.		0.42		1.0		74.		11.		14.	
LF6EX101	DUP092905-2	29-Sep-05	ND(2.3)	UJ	4.1	J	65.		0.19		0.64		48.		8.3		11.	
	LF6EX101(1.0)	29-Sep-05	ND(2.9)	UJ	3.9	J	72.		0.22		0.71		50.		9.0		16.	
LF6EX102	LF6EX102(3.0)	16-Jun-05	ND(2.9)	UJ	3.9		78.	J-	0.36	J	0.40		55.	J-	9.0		16.	
LF6EX109	LF6EX109(0.5)	16-Jun-05	ND(2.2)	UJ	6.6		130.	J-	0.44	J	0.65		42.	J-	12.		38.	
LF6EX117	LF6EX117(7)	27-Jun-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX119	LF6EX119(7)	28-Jun-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX129	LF6EX129(20.0)	07-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX130[1]	LF6EX130(6.0)	07-Jul-05	ND (3.0)		4.1		71.		0.40		1.4		100.		17.		12.	
LF6EX131	LF6EX131(6.0)	07-Jul-05	ND (3.3)		2.9		110.		0.39		1.1		81.		11.		29.	
LF6EX132	LF6EX132(9.0)	07-Jul-05	ND (3.0)		2.0		380.		0.67		1.2		16.		11.		110.	
LF6EX139	LF6EX139(7.5)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX140	LF6EX140(5.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX141	LF6EX141(8.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX142	DUP072105	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
	LF6EX142(15.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX145	LF6EX145(6.0)	15-Aug-05	ND(3.2)	UJ	3.8		70.		0.38	J	0.55		97.		10.		10.	
LF6EX147[1]	LF6EX147(1.0)	15-Aug-05	ND(2.5)	UJ	3.1		64.		0.25	J	0.92		50.		6.6		33.	
LF6EX151	LF6EX151(6.5)	25-Aug-05	ND(3.7)	UJ	1.7		100.		0.31		0.72		90.		8.6		6.5	
LF6EX152	LF6EX152(1.5)	25-Aug-05	ND(2.6)	UJ	2.8		120.		0.38		0.84		61.		14.		17.	
LF6EX153[1]	LF6EX153(2.0)	25-Aug-05	ND(2.7)	UJ	3.9		220.		0.30		0.90		65.		10.		24.	
LF6EX154	LF6EX154(10.0)	15-Sep-05	ND(2.7)	UJ	3.3		32.		0.25		0.71		79.		9.1		4.6	
LF6EX155	LF6EX155(7.0)	15-Sep-05	ND(3.1)	UJ	3.2		56.		0.22		0.87		130.		8.5		2.8	
LF6EX156	LF6EX156(2.0)	15-Sep-05	ND(3.1)	UJ	7.2		95.		0.29		0.88		55.		11.		16.	
LF6EX157	LF6EX157(5.5)	15-Sep-05	ND(2.4)	UJ	5.7		68.		0.19		0.87		82.		11.		8.2	
LF6EX158	LF6EX158(1.0)	15-Sep-05	ND(3.3)	UJ	4.5		88.		0.31		1.2		74.		13.		12.	
LF6EX159	LF6EX159(1.0)	29-Sep-05	ND(2.8)	UJ	5.5	J	99.		0.21		0.95		96.		11.		8.0	

Station Name	Sample Number (depth)	Sample Date	Lead mg/kg		Mercury mg/kg		Molybdenum mg/kg		Nickel mg/kg		Selenium mg/kg		Silver mg/kg		Thallium mg/kg		Vanadium mg/kg		Zinc mg/kg	
Cleanup Level (mg/kg)			300		1.6		300		110		1.1		2		1		90		60	
			Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual
LF6EX100	DUP092905-1	29-Sep-05	7.2		0.04		ND(1.2)		45.		ND(0.31)		ND(0.31)	UJ	ND(0.31)		65.	J+	39.	
	LF6EX100(6.5)	29-Sep-05	5.3		ND(0.026)		ND(1.0)		46.		ND(0.25)		ND(0.25)	UJ	0.50		69.	J+	37.	
LF6EX101	DUP092905-2	29-Sep-05	21.		0.041		ND(0.78)		31.		ND(0.2)		ND(0.2)	UJ	ND(0.2)		51.	J+	33.	
	LF6EX101(1.0)	29-Sep-05	23.		0.049		ND(0.97)		35.		ND(0.24)		ND(0.24)	UJ	ND(0.24)		53.	J+	40.	
LF6EX102	LF6EX102(3.0)	16-Jun-05	31.		0.17		ND(0.96)		39.	J-	0.58		ND(0.24)		ND(0.24)		47.		38.	
LF6EX109	LF6EX109(0.5)	16-Jun-05	33.		0.16		ND(0.72)		47.	J-	0.56		ND(0.18)		ND(0.18)		39.		76.	
LF6EX117	LF6EX117(7)	27-Jun-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX119	LF6EX119(7)	28-Jun-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX129	LF6EX129(20.0)	07-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX130[1]	LF6EX130(6.0)	07-Jul-05	3.2	J-	ND(0.022)		ND(1.0)		83.		1.8		ND(0.25)		ND(0.25)		64.		35.	
LF6EX131	LF6EX131(6.0)	07-Jul-05	63.	J-	0.059		ND(1.1)		45.		1.2		ND(0.27)		ND(0.27)		54.		70.	
LF6EX132	LF6EX132(9.0)	07-Jul-05	8.0	J-	ND(0.016)		ND(1.0)		18.		2.0		ND(0.25)		ND(0.25)		38.		16.	
LF6EX139	LF6EX139(7.5)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX140	LF6EX140(5.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX141	LF6EX141(8.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX142	DUP072105	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
	LF6EX142(15.0)	20-Jul-05	NT		NT		NT		NT		NT		NT		NT		NT		NT	
LF6EX145	LF6EX145(6.0)	15-Aug-05	3.2	J+	ND(0.029)		ND(1.1)		70.		ND(0.27)		ND(0.27)		ND(0.27)		61.		31.	
LF6EX147[1]	LF6EX147(1.0)	15-Aug-05	27.	J+	0.80		(0.84)		34.		0.26		0.99		ND(0.21)		44.		81.	
LF6EX151	LF6EX151(6.5)	25-Aug-05	4.6		ND(0.02)		ND(1.2)		40.		0.80		ND(0.31)		0.48		62.		28.	J+
LF6EX152	LF6EX152(1.5)	25-Aug-05	14.		0.099		ND(0.87)		41.		1.6		ND(0.22)		ND(0.22)		60.		47.	J+
LF6EX153[1]	LF6EX153(2.0)	25-Aug-05	1,900.		0.24		ND(0.90)		54.		1.4		ND(0.23)		ND(0.23)		58.		190.	J+
LF6EX154	LF6EX154(10.0)	15-Sep-05	3.2		ND(0.027)	UJ	ND(0.88)		53.	J+	ND(0.22)		ND(0.22)		ND(0.22)		62.	J+	24.	
LF6EX155	LF6EX155(7.0)	15-Sep-05	3.5		ND(0.027)	UJ	ND(1.0)		52.	J+	ND(0.26)		ND(0.26)		ND(0.26)		80.	J+	25.	
LF6EX156	LF6EX156(2.0)	15-Sep-05	8.9		0.065	J-	ND(1.0)		42.	J+	ND(0.26)		ND(0.26)		ND(0.26)		53.	J+	43.	
LF6EX157	LF6EX157(5.5)	15-Sep-05	45.		0.21	J-	ND(0.81)		71.	J+	ND(0.2)		ND(0.2)		ND(0.2)		58.	J+	68.	
LF6EX158	LF6EX158(1.0)	15-Sep-05	42.		0.31	J-	ND(1.1)		53.	J+	ND(0.27)		ND(0.27)		ND(0.27)		56.	J+	210.	
LF6EX159	LF6EX159(1.0)	29-Sep-05	28.		0.24		ND(0.93)		78.		ND(0.23)		ND(0.23)	UJ	0.38		65.	J+	50.	

Notes:
1 - Samples that were over-excavated

Results exceeding cleanup levels are outlined with a box.
Qualifiers are presented in Table 10
ND = Not Detected at the specific reporting level in parentheses.
NT = Not Tested

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Table 8 Areas of Over-Excavation
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Station (Over-Excavation Date)	Location	Analyte Exceedance (Cleanup Level) in mg/kg	Over Excavation Size	Confirmation Sample(s) (date collected)	Confirmation Sample Frequency	Confirmation Sample Analyses	Confirmation Sample Results	Notes
LF6EX111(2.0) (7/21/05)	Native Plant Zone Western Perimeter Sample (near parking lot behind Bldgs. 222 and 223	TPHfo: 190 (144) Nickel: 140 (110) Cadmium: 1.1 (0.8)	10 ft by 8 ft by 1 foot deep	LF6EX138(3.0) (7/21/05)	Perimeter Sampling (One sample per 75 feet of lateral extent)	PCBs, Title 22 Metals, VOCs, SVOCs, pesticides, chlorinated herbicides, TPHd/fo	No analytes detected above cleanup levels	DTSC requested over excavation at this location due to TPH exceedance. Vertical confirmation sample collected in yellowish brown clayey sand fill.
LF6EX134 (2.5) (8/23/2005)	Native Plant Zone Northern Perimeter Sample	PCBs: 0.050 (0.033)	10 ft by 10 ft by 2.5 ft deep	LF6EX149(5.0) (8/23/05)	Perimeter Sampling (One sample per 75 feet of lateral extent)	PCBs, Title 22 Metals	PCBs not detected above cleanup level; Selenium detected above cleanup level (0.5 mg/kg) at 0.85 mg/kg	Vertical confirmation sample collected in yellowish brown clayey sand fill material. Selenium concentration exceedance in re-confirmation sample evaluated to be background.
LF6EX147 (1.0) (9/15/2005)	Landscape Zone Northern Perimeter Sample	Zinc: 81 (60) Cadmium: 0.92 (0.8) PCBs: 0.177 (0.16)	8 ft by 8 ft by 1 foot deep	LF6EX156(2.0) (9/15/05)	Perimeter Sampling (One sample per 75 feet of lateral extent)	PCBs, Title 22 Metals	Arsenic detected above cleanup level (6.2 mg/kg) at 7.2 mg/kg; Cadmium detected above cleanup level (0.80 mg/kg) at 0.88 mg/kg	Vertical confirmation sample collected on FS6B boundary in yellowish brown clayey sand with gravel fill material. Arsenic meets UCL cleanup criteria. Cadmium concentration exceedance in re-confirmation sample evaluated to be background.

Table 8 Areas of Over-Excavation
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Station (Over-Excavation Date)	Location	Analyte Exceedance (Cleanup Level) in mg/kg	Over Excavation Size	Confirmation Sample(s) (date collected)	Confirmation Sample Frequency	Confirmation Sample Analyses	Confirmation Sample Results	Notes
LF6EX108 (3.0) (8/25/2005)	Native Plant Zone Southern Perimeter Sample	PCBs: 0.305 (0.033)	8 ft by 8 ft by 2 ft deep	LF6EX150(5.0) (8/25/05)	Perimeter Sampling (One sample per 75 feet of lateral extent)	PCBs, Title 22 Metals	PCBs non-detect; Selenium detected above cleanup level (0.5 mg/kg) at 1.3 mg/kg	Confirmation sample collected in yellowish brown clayey sand fill material. Selenium concentration exceedance in re-confirmation sample evaluated to be background.
LF6EX130 (6.0) (8/13/2005)	Landscape Zone (near Redwood Grove) Floor Sample	Selenium: 1.8 (1.1) Cadmium: 1.4 (0.8)	10 ft by 15 ft by 1 to 2 ft deep	LF6EX145(6.0) (8/13/05)	Sidewall Sampling (For sidewalls between 5 and 15 ft, sample collected one-third to two-thirds of wall height every 50 ft of its lateral extent)	PCBs, Title 22 Metals	No PCBs or metals detected above cleanup levels	LF6EX130 (6.0) collected along sidewall of the Redwood Grove 6 feet below original grade at the request of DTSC during site visit. On 8/13/05, an additional 1- to 2-feet of sidewall was removed from the entire 10-foot high slope along an approximate 15-foot length under guidance of Trust Forester (no further excavation possible without detrimental effect to trees); floor sample LF6EX145(6.0) was collected in yellowish brown clayey sand with gravel fill.

Table 8 Areas of Over-Excavation
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Station (Over-Excavation Date)	Location	Analyte Exceedance (Cleanup Level) in mg/kg	Over Excavation Size	Confirmation Sample(s) (date collected)	Confirmation Sample Frequency	Confirmation Sample Analyses	Confirmation Sample Results	Notes
LF6EX153 (2.0) (9/14/2005)	Landscape Zone (near Redwood Grove) Floor Sample	Cadmium – 0.90 (0.8) Lead: 1,900 (300) Selenium: 1.4 (1.1) Zinc: 190 (60)	Sloped excavation, 6 ft by 6 ft by 0.5 to 1.0 foot into native Colma	LF6EX155(7.0) (9/15/05)	Floor Sampling (One sample per 5,265 square feet)	PCBs, Title 22 Metals	Cadmium detected above cleanup level (0.80 mg/kg) at 0.87 mg/kg	Over excavation of concrete debris into native Colma soil; confirmation floor sample collected in yellowish brown sandy native Colma soil. Cadmium concentration exceedance in re-confirmation sample evaluated to be within background range.
LF6EX143 (24.5) (8/23/2005)	Native Plant Zone Floor Sample	Antimony: 16 (5) Arsenic: 32 (6.2) Cadmium: 5.7 (0.8) Copper: 150 (49) Nickel: 960 (110) Vanadium: 680 (90)	10 ft by 10 ft by 2 ft deep	LF6EX148(25.5) DUP(082305) (8/23/05) LF6EX160(28.0) LF6EX161(27.5) LF6EX162(21.5) LF6EX163(27.5) (10/18/05)	Floor Sampling (One sample per 5,265 square feet)	PCBs, Title 22 Metals	No PCBs detected above cleanup levels. Cadmium detected above cleanup level (0.80 mg/kg) in all four samples collected on 10/18/05 at concentrations between 0.86 and 1.5 mg/kg. Chromium 290 mg/kg (140) Nickel 140 mg/kg (110), and Vanadium 120 mg/kg (90 detected above cleanup in sample LF6EX163.	Initially, one floor confirmation sample was collected per RAP requirements. Four additional floor samples were collected surrounding the excavation per an agreement between the Trust, DTSC, and RWQCB during a site meeting held on October 5, 2005. Samples LF6EX160, 161, and 163 were collected in native soil, and LF6EX162 was collected in fill soil.

Note: Neither over-excavated areas at the FDS pipeline excavation nor the building foundation excavations are included in this table

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Table 9. Detected Compounds in Water and Sediment Samples
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Aluminum µg/l	Antimony µg/l	Arsenic µg/l	Barium µg/l	Beryllium µg/l	Cadmium µg/l	Calcium µg/l	Chromium µg/l	Cobalt µg/l	Copper µg/l	Iron µg/l	Lead µg/l
Groundwater Cleanup Levels (µg/l)(1)		NE	6	10	1000	4	1.1	NE	50	NE	11.8	NE	3.2
Soil Cleanup Levels (mg/kg)(2)		NE	5	6.2	320	10	0.8	NE	140	21	49	NE	160
Industrial Wastewater Limits (µg/l)(4)		NE	NE	4,000	NE	NE	500	NE	5,000	NE	4,000	NE	1,500
Sample Number	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
LF6WW200(4)	6-Jun-05	3,900.	1.3	3.1	150.	0.10 /J	ND(0.25)	40,000.	17 /J	3.2	5.7	4,400.	13.
LF6WW201(1)	06-Jul-05	1,700.	ND(60)	ND(5.0)	83.	ND(2)	ND(5.0)	38,000.	22.	ND(20)	6.2	2,100.	$\boxed{8.5}$
LF6SW202(1)	14-Jul-05	ND(100)	ND(60) UJ	ND(5.0) U/J	68.	0.096 /J	ND(5.0)	60,000.	ND(10)	ND(20)	7.0 /J	230.	1.3
LF6WW203(1)	14-Jul-05	ND(50)	ND(60) UJ	ND(5.0) U	68.	ND(2)	ND(5.0)	46,000.	6.7 /J	ND(20)	9.8	120.	0.77
LF6WW204(1)	15-Jul-05	ND(100)	ND(60) U/J	ND(5.0)	70.	ND(2)	ND(5.0)	43,000.	13.	ND(20)	ND(10) U/J	ND(100)	ND(3)
LF6WW205(1)	15-Jul-05	ND(50)	0.16 /J	0.73	68.	ND(0.25)	ND(0.25)	42,000.	11.	0.4	1.0	ND(110) U	0.13 /J
LF6SW206(1)	22-Jul-05	ND(100)	1.1	ND(5.0)	58.	ND(2)	ND(0.25)	52,000.	ND(10)	ND(10)	2.8	120.	ND(3)
DUP072205*	22-Jul-05	ND(50) U/J	0.43	ND(0.65)	56.	ND(0.25)	ND(0.25)	51,000.	1.2 J	0.34	2.5	220.	0.25 /J
LF6WW207(1)	29-Aug-05	27. /J	0.79	0.97	110.	0.069 /J	ND(0.25)	45,000.	13.	1.5	0.83	180.	ND(0.25)
LF6SW208(1)	18-Oct-05	ND(50) UJ+/J	0.33	ND(0.65)	72.	ND(0.25)	ND(0.25)	ND(46,000.) UJ+	20.	0.34	1.9	160.	ND(0.25)
DUP101805*	18-Oct-05	ND(50) UJ+/J	2.6	ND(0.65)	67.	ND(0.25)	ND(0.25)	45,000. J+	19.	0.33	1.8	140.	ND(0.25)
LF6SW209(1)	18-Oct-05	ND(50) UJ+/J	0.60	ND(0.65)	53.	ND(0.25)	ND(0.25)	30,000. J+	21.	0.15 J	0.73	130.	ND(0.25)
LF6SP106(3)	15-Jul-05	5,800.	ND(2.5)	2.1	31.	0.14	0.39	2,200.	50.	5.5	4.6	13,000.	14.

		Magnesium µg/l	Manganese µg/l	Mercury µg/l	Molybdenum µg/l	Nickel µg/l	Potassium µg/l	Selenium µg/l	Silver µg/l	Sodium µg/l	Thallium µg/l	Vanadium µg/l	Zinc µg/l
Groundwater Cleanup Levels (µg/l)(1)		NE	NE	0.012	NE	100	NE	5	4.1	NE	1.7	NE	106
Soil Cleanup Levels (mg/kg)(2)		NE	NE	0.4	12	110	NE	0.5	2	NE	1	90	60
Industrial Wastewater Limits (µg/l)(4)		NE	NE	0.05	NE	2,000	NE	NE	600	NE	NE	NE	7,000
Sample Number	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
LF6WW200(4)	6-Jun-05	54,000.	680.	ND (0.080)	3.8 J	14.	1,900.	0.53	0.053 /J	64,000.	0.94	19.	16.
LF6WW201(1)	06-Jul-05	49,000.	67.	ND (0.080)	ND(0.76) U	ND(20)	650.	0.70	ND(5)	51,000.	ND(5)	27.	ND(20)
LF6SW202(1)	14-Jul-05	31,000.	38.	ND (0.080)	ND(1) U/Jb	4.9	1,800.	ND(5)	0.75 /J	34,000.	ND(5)	1.4 /J	ND(20) U/J
LF6WW203(1)	14-Jul-05	42,000.	130.	ND (0.080)	0.50 /Jb	3.9 /J	1,300.	ND(5)	0.86 /J	52,000.	ND(5)	3.4 /J	ND(20) U/J
LF6WW204(1)	15-Jul-05	52,000.	31.	ND (0.080)	ND(0.5) U/Jb	3.6 /J	960.	ND(5)	ND(5)	53,000.	4.2	6.6 /J	ND(20)
LF6WW205(1)	15-Jul-05	47,000.	63.	ND (0.080)	ND(0.76) U/b	4.3	830.	0.40 /J	ND(0.25)	48,000.	ND(0.5)	6.5	ND(1) UJ
LF6SW206(1)	22-Jul-05	36,000.	55.	ND (0.080)	0.29 /J	ND(20)	2,100.	8.6	ND(0.25)	42,000.	ND(0.5)	ND(10)	ND(20)
DUP072205*	22-Jul-05	35,000.	56.	ND (0.080)	ND(0.5) UJ/J	4.5.	1,700.	0.37 /J	0.06 /J	38,000.	0.42 J	1.2	14.
LF6WW207(1)	29-Aug-05	68,000.	600.	ND (0.080)	1.3	11.	630.	0.72	0.069 /J	67,000.	ND(0.5)	4.8	12.
LF6SW208(1)	18-Oct-05	72,000.	130.	ND (0.080)	0.097 /J	16.	600.	0.64	ND(0.25)	65,000.	ND(0.5)	3.4	13.
DUP101805*	18-Oct-05	71,000.	120.	ND (0.080)	0.092 /J	15.	560.	ND(0.50)	ND(0.25)	63,000.	ND(0.5)	2.9	9.3
LF6SW209(1)	18-Oct-05	46,000.	15.	ND (0.080)	0.20 /J	6.6	200.	0.58	ND(0.25)	48,000.	0.38 J	2.0	6.1
LF6SP106(3)	15-Jul-05	2,500.	160.	ND (0.017)	ND(0.85)	30.	310.	ND(0.21)	ND(0.21)	400.	ND(0.21)	31.	19.

Footnotes:

(1) Previously developed FS6A cleanup goal for groundwater; groundwater cleanup levels used to evaluate seep water samples to assess potential impacts for discharge to Crissy Marsh
(2) Previously developed FS6A cleanup goal for residential - Colma formation, Ecological - Special Status, only applicable to LFSP106; soil cleanup levels used to evaluate sediment samples
(3) Sediment Sample - results are in milligrams per kilogram (mg/kg; equivalent to parts per million) - reported in dry weight basis; compared to soil cleanup levels
(4) Previously developed FS6A discharge requirements for Industrial User Class II Wastewater Permit, Feb-07-2005; industrial waste water limits used to evaluate water samples collected from accumulated water in the bermed area, sump, or excavation

All samples except LF6WW200 and LF6WW201 were filtered and represent dissolved metals. LF6WW200 and 201 represent total metals.
* Duplicate sample of previous sample number
Results exceeding cleanup levels are outlined with a box.
Qualifiers are presented in Table 3
ND = Not Detected at the specific reporting level in parentheses.
NE = Not Established
NT = Not Tested
Note: Samples analyzed for TPH, cyanide, and PCB compounds are listed in Table 2, and showed no detections above laboratory reporting limits

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Table 10. Surface Water Conditions
construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

DATE	TIME	LOCATION		PH	EC	SC	TEMP	TURB	COMMENTS	WEATHER
					μmhos	μmhos	Celcius	NTU		
10/26/2005	640	Upstream		7.54	600	728	14.3	13.30	water flowing slowly	
10/26/2005	655	Downstream		7.26	650	797	13.7	18.20	water pooling adjacent to pump	
10/26/2005	705	Crissy Marsh		7.53	32000	39424	13.4	7.66	collected from just outside pipe. no observed flow	
10/28/2005	1800	Crissy Marsh	*	6.97	24500	26803	20.3	34.10	Clear. Odorless.	1 hr. into storm
11/1/2005	555	Upstream		7.43	600	732	14.0	3.37	low flow. Clear. Odorless. Yellowish	
11/1/2005	610	Downstream		7.25	650	805	13.1	6.96	flow 20 gpm. Clear. Odorless. Slightly yellowish	
11/1/2005	620	Crissy Marsh		7.61	36000	42840	15.5	4.93	Outbound flow. Clear. Odorless.	
11/4/2005	NA	Upstream	*	7.37	950	1018	21.4	4.67	Clear. Odorless.	
11/4/2005	NA	Downstream	*	7.43	750	803	21.5	7.49	Clear. Odorless.	
11/4/2005	NA	Crissy Marsh	*	7.29	24000	25824	21.2	3.80	Clear. Odorless.	
11/8/2005	810	Upstream		7.28	340	418	13.6	20.40	low flow. Clear. Odorless. Yellowish-brown	post storm
11/8/2005	825	Downstream		7.25	600	724	14.7	13.30	little to no flow	post storm
11/8/2005	835	Crissy Marsh		7.41	29000	34684	15.2	24.60	Outbound flow. Clear. Odorless.	post storm
11/15/2005	555	Upstream		6.91	550	669	14.2	4.18	Clear. Odorless. Slight flow	
11/15/2005	610	Downstream		6.87	600	724	14.7	9.11	Clear. Odorless. some algae floccules.	
11/15/2005	620	Crissy Marsh		7.21	27000	32022	15.7	6.93	Clear. Odorless. outbound flow. WL at top of pipe	
11/23/2005	1515	Upstream		6.87	600	708	16.0	5.55	Clear. Odorless. Slight flow	
11/23/2005	1525	Downstream		7.14	650	759	16.6	4.72	Pooled water. Some algae. Clear, odorless	
11/23/2005	1535	Crissy Marsh		7.36	16000	18912	15.9	5.40	Outbound flow. Clear. Odorless.	
11/29/2005	545	upstream		6.3	100	127	11.5	59.90	flow 100 gpm. Clear, yellowish, odorless	storm event. <1 in.
11/29/2005	555	Downstream		6.82	230	287	12.7	66.00	flow 100 gpm. Clear, yellowish, odorless	storm event. <1 in.
11/29/2005	605	Crissy Marsh		6.77	19000	23826	12.3	37.70	Outbound flow. Clear. Odorless. High WL in pond	storm event. <1 in.
12/9/2005	1340	upstream		7.89	750	927	13.2	2.46	low flow. Clear. Odorless.	
12/9/2005	1330	Downstream		7.55	650	783	14.8	5.63	flow 10-20 gpm. Clear odorless	
12/9/2005	1320	Crissy Marsh		7.63	30000	36600	14.0	16.80	Outbound flow. Clear. Odorless.	
12/16/2005	1305	Upstream		7.04	500	639	11.1	3.85	low flow. Clear. Odorless.	
12/16/2005	1315	Downstream		7.27	650	800	13.5	7.75	flow 10-20 gpm. Clear odorless	
12/16/2005	1325	Crissy Marsh		7.39	18000	22824	11.6	11.20	Outbound flow. Clear. Odorless. WL half way up pipe	
12/20/2005	1430	Upstream		7.66	330	405	13.7	128.00	Silty yellow-grey. No odor. Flow 50-70 gpm	storm event. 4 in.
12/20/2005	1505	Downstream		7.46	280	342	13.9	164.00	Silty yellow-grey. No odor. Flow 50-70 gpm. Trace sand	storm event. 4 in.
12/20/2005	1410	Crissy Marsh		7.35	17000	20944	13.4	26.60	Mildly silty grey. Outbound flow. High WL in pond	storm event. 4 in.
12/27/2005	1200	Upstream		7.25	440	546	12.9	38.30	yellow-grey. No odor. Flow 50-100 gpm	storm event. 5 in
12/27/2005	1245	Downstream		6.85	320	392	13.7	80.20	yellow-grey. No odor. Flow 50-100 gpm	storm event. 5 in
12/27/2005	1300	Crissy Marsh		7.35	30000	37260	12.9	17.40	Outbound flow. Clear. Odorless.WL half way up pipe	storm event. 5 in
1/3/2006	1050	Upstream		7.44	600	748	12.7	19.00	Clear. yellow. No odor. Flow 50-100 gpm	post storm
1/3/2006	1115	Downstream		7.43	600	743	13.1	17.70	Clear. yellow. No odor. Flow 50-100 gpm	post storm

Table 10. Surface Water Conditions
construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

DATE	TIME	LOCATION	PH	EC µmhos	SC µmhos	TEMP Celcius	TURB NTU	COMMENTS	WEATHER
1/3/2006	1130	Crissy Marsh	7.52	1000	1240	13.0	14.50	Outbound flow. Clear. yellow..WL half way up pipe. Sheen	post storm
1/9/2006	755	Upstream	7.84	700	917	9.5	5.46	Clear. yellow. No odor. Flow 50 gpm	
1/9/2006	810	Downstream	7.7	700	899	10.8	3.78	Clear. yellow. No odor. Some pooling, slow outbound flow	
1/9/2006	820	Crissy Marsh	7.57	2550	3244	11.4	4.33	Outbound flow. Clear. yellow. High WL in pond. Sheen	
1/16/2006	845	Upstream	7.59	750	981	9.6	2.87	Clear. yellow. No odor. Flow 30-50 gpm	
1/16/2006	910	Downstream	7.3	800	1002	12.4	3.28	Clear. yellow. Outbound 30-50 gpm. Fuel odor from pipe	
1/16/2006	920	Crissy Marsh	7.36	2800	3511	12.3	3.97	Outbound flow. Clear. yellow. WL half on pipe. Slight sheen	
1/27/2006	645	Upstream	7.23	360	467	10.2	16.70	Clear. Grayish-yellow. No odor. Flow 100 gpm	0.5 in overnight
1/27/2006	700	Downstream	7.11	320	307	27.1	27.10	Clear. Grayish-yellow. Outbound 100 gpm.	0.5 in overnight
1/27/2006	710	Crissy Marsh	7.22	1300	1412	20.7	20.70	Outbound flow. WL half on pipe. Slight TPH odor from pipe	0.5 in overnight
2/1/2006	1700	Upstream	7.1	215	265	13.3	216.00	Grayish yellow. Flow at 150-200 gpm	storm event
2/1/2006	1715	Downstream	7.3	230	284	13.2	109.00	Grayish yellow. Flow at 150-200 gpm	storm event
2/1/2006	1725	Crissy Marsh	7.55	300	368	13.6	82.00	Outbound flow. WL half on pipe. Slight TPH odor from pipe	storm event

NOTES:

EC = electrical conductance
TURB = turbidity
TEMP = temperature

* sample held at room temperature by R. Seelbach. Readings taken on 11/8/05

SC--Specific conductance is temperature compensated to 25 degrees C

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Table 11. Detected Compounds in Backfill and Stockpile Soil Samples
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg
Native Plant Zone Soil Cleanup Levels (mg/kg)		5	6.2	320	10	0.8	140	21	49	160	0.4	12
Landscape Zone Soil Cleanup Levels (mg/kg)		5	6.2	500	10	0.8	48	120	1,000	300	1.6	300
Sample Number	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
Storm Drain Stockpile Samples												
LF6SP100	28-Jun-05	NT	2.9	69.9	0.23	NT	62.9	9.0	12.2	26.3	0.039	0.25
LF6SP101	29-Jun-05	3.7 J-	2.0	86. J-	0.29	0.63	75.	9.8	14.	23.	ND(0.02)	NT
LF6SP102	01-Jul-05	ND(2.9)	ND(0.24)	35.	0.15	0.46	67.	7.3	4.3	1.9	0.076	NT
Nurses Quarters Stockpile Samples												
LF6SP103	30-Jun-05	ND(2.7)	8.5	160.	0.27	1.1	74.	12.	23.	520.	0.16	NT
Topsoil/Duff east of Redwood Grove												
LF6SP104	07-Jul-05	ND(3.6)	11.	130.	0.46	0.57	60.	14.	100.	99. J-	0.22	NT
CAS Stockpile Sample												
LF6SP105	07-Jul-05	ND(3)	3.9	42.	0.28	0.35	36.	6.1	11.	25. J-	0.05	NT
LF6SS305	26-Oct-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
P25055	22-Jun-05	ND (3.0)	ND (1.7)	24	ND (2.0)	ND (0.60)	27.	5.0	7.9	22	0.42	ND (0.5)
GA9SS-COMP501-504*	30-Jul-04	NT	NT	NT	NT	NT	NT	NT	NT	1.8	NT	NT
DUP073004-COMP501-508*	30-Jul-04	NT	NT	NT	NT	NT	NT	NT	NT	1.6	NT	NT
GA9SS-COMP505-508*	30-Jul-04	NT	NT	NT	NT	NT	NT	NT	NT	1.6	NT	NT
NPZ Placed-Backfill Sample												
LF6SS306	01-Nov-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dust Bowl-Stockpile Sample												
LF6SS303	26-Oct-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
LZ Placed-Backfill Sample												
LF6SS304	26-Oct-05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
PSEC Stockpile Rubble Samples (from building demolition)												
LF6SP107	15-Jul-05	ND(2.8)	4.7	110.	0.27	0.75	66.	9.5	13.	180.	0.14	NT
LF6SP108	22-Jul-05	ND(3.4)	3.4	110.	0.44	ND(0.28)	65.	11.	16.	36.	0.38	NT

*Samples analyzed for BTEX and PCBs which were not detected. Additional pesticide compounds were analyzed for but not detected (Appendix L).
See Table 2 for a description of where stockpile and backfill samples were taken
Footnotes: (1) Cleanup level for total chlordane; (2) Results presented are the sum of reported concentrations of alpha and gamma- chlordane; presented for comparison to the cleanup level.
Results exceeding cleanup levels are outlined with a box
Qualifiers are presented in Table 3
NT = Not Tested
ND = Not Detected at the specific reporting level in parentheses
CAS = California Academy of Sciences
NPZ = Native Plant Zone
LZ = Landscape Zone
Note: As described in Section 2.3.1, "Import of Backfill," Dust Bowl placed backfill included 3,000 cubic yards placed in the Landscape Zone and 80 cubic yards placed in the Native Plant Zone inlet structure; CAS placed backfill included 3,060 cubic yards placed in the Landscape Zone and 800 cubic yards placed in the bottom of the storm drain trench in the Native Plant Zone; approximately 350 cubic yards of native Colma sand from the stormdrain trench was placed over the CAS dune sand See Figure 7 for locations of placed backfill.

Table 11. Detected Compounds in Backfill and Stockpile Soil Samples
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Vanadium mg/kg	Zinc mg/kg	alpha-Chlordane mg/kg	gamma-Chlordane mg/kg	Chlordane(2) mg/kg	TPH Diesel (C12-C24) mg/kg	TPH Fuel Oil (C24-C36) mg/kg
Native Plant Zone Cleanup Levels (mg/kg)		**110**	**0.5**	**2**	**90**	**60**	**0.009(1)**	**0.009(1)**	**0.009(1)**	**144**	**144**
Landscape Zone Cleanup Levels (mg/kg)		**110**	**1.1**	**2**	**90**	**60**	**0.018**	**0.032**	**0.18**	**700**	**980**
Sample Number	Sample Date	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual	Value Qual
Storm Drain Stockpile Samples											
LF6SP100	28-Jun-05	45.	NT	NT	42.1	38.	NT	NT	NT	40. /HY	87.
LF6SP101	29-Jun-05	55.	ND(0.23)	ND(0.23)	54.	41.	NT	NT	NT	17. /HY	70.
LF6SP102	01-Jul-05	49.	ND(0.24)	ND(0.24)	44.	24.	NT	NT	NT	7.5 /HY	64.
Nurses Quarters Stockpile Samples											
LF6SP103	30-Jun-05	53.	ND(0.22)	ND(0.22)	53.	$\boxed{240.}$	NT	NT	NT	NT	NT
Topsoil/Duff east of Redwood Grove											
LF6SP104	07-Jul-05	51.	$\boxed{1.9}$	0.39	49.	$\boxed{110.}$	NT	NT	NT	NT	NT
CAS Stockpile Sample											
LF6SP105	07-Jul-05	24.	$\boxed{1.2}$	ND(0.25)	37.	44.	ND(0.018)	ND(0.018)	ND(0.018)	17. /HY	110.
LF6SS305	26-Oct-05	NT	NT	NT	NT	NT	NT	NT	NT	4.1 /HY	11.
P25055	22-Jun-05	20	ND (2.0)	ND (1.0)	27	24	ND (1.7)	ND (1.7)	NT	ND (2.0)	51.3
GA9SS-COMP501-504*	30-Jul-04	NT	NT	NT	NT	NT	ND (1.7)	ND (1.7)	NT	NT	NT
DUP073004-COMP501-508*	30-Jul-04	NT	NT	NT	NT	NT	ND (1.8)	ND (1.8)	NT	NT	NT
GA9SS-COMP505-508*	30-Jul-04	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
NPZ Placed-Backfill Sample											
LF6SS306	01-Nov-05	NT	NT	NT	NT	NT	0.0028 /CJ	0.0035 /J	0.0063	2.4 /HY	15. /H
LZ Placed-Backfill Sample											
LF6SS304	26-Oct-05	NT	NT	NT	NT	NT	0.018 /C	0.014	0.032	13. /HY	96.
Dust Bowl-Stockpile Sample											
LF6SS303	26-Oct-05	NT	NT	NT	NT	NT	0.0043 /CJ	0.0049 /J	$\boxed{0.0092}$	2.7 /HY	12.
PSEC Stockpile Rubble Samples (from building demolition)											
LF6SP107	15-Jul-05	58.	ND(0.23)	ND(0.23)	50.	$\boxed{82.}$	NT	NT	NT	NT	NT
LF6SP108	22-Jul-05	65.	ND(0.28)	ND(0.28)	45.	46.	NT	NT	NT	NT	NT

*Samples analyzed for BTEX and PCBs which were not detected. Additional pesticide compounds were analyzed for but not detected (Appendix L).
See Table 2 for a description of where stockpile and backfill samples were taken
Footnotes: (1) Cleanup level for total chlordane; (2) Results presented are the sum of reported concentrations of alpha and gamma- chlordane; presented for comparison to the cleanup level.
Results exceeding cleanup levels are outlined with a box
Qualifiers are presented in Table 3
NT = Not Tested
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Note: As described in Section 2.3.1, "Import of Backfill," Dust Bowl placed backfill included 3,000 cubic yards placed in the Landscape Zone and 80 cubic yards placed in the Native Plant Zone inlet structure; CAS placed backfill included 3,060 cubic yards placed in the Landscape Zone and 800 cubic yards placed in the bottom of the storm drain trench in the Native Plant Zone; approximately 350 cubic yards of native Colma sand from the stormdrain trench was placed over the CAS dune sand See Figure 7 for locations of placed backfill.

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Table 12. Summary of Off-Hauled Soil Loads
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Class	Landfill	Date	Truck Loads	Tons
3	OX Mountain	5/24/2005	71	1867.88
3	OX Mountain	5/25/2005	112	2800.1
3	OX Mountain	5/26/2005	126	3360.32
3	OX Mountain	5/27/2005	157	4141.01
3	OX Mountain	5/31/2005	207	5398.66
May Total			**673**	**17567.97**
3	OX Mountain	6/1/2005	186	5089.52
3	OX Mountain	6/2/2005	144	3677.95
3	OX Mountain	6/3/2005	82	2218.12
3	OX Mountain	6/6/2005	151	4041.85
3	OX Mountain	6/7/2005	94	2383.15
3	OX Mountain	6/8/2005	7	198.25
3	OX Mountain	6/13/2005	63	1687.48
3	OX Mountain	6/14/2005	103	2581.74
3	OX Mountain	6/15/2005	111	2973.94
3	OX Mountain	6/16/2005	94	2303.36
3	OX Mountain	6/20/2005	117	3075.14
3	OX Mountain	6/21/2005	145	3745.88
3	OX Mountain	6/22/2005	108	2920.21
3	OX Mountain	6/23/2005	130	3425.53
3	OX Mountain	6/24/2005	109	2747.80
June Total			**1644**	**43069.92**
3	OX Mountain	7/5/2005	64	1725.77
3	OX Mountain	7/7/2005	31	876.94
3	OX Mountain	7/8/2005	70	1745.03
3	OX Mountain	7/13/2005	3	68.57
July Total			**168**	**4416.31**
3	OX Mountain	8/9/2005	19	522.24
3	OX Mountain	8/12/2005	35	862.48
3	OX Mountain	8/13/2005	30	792.47
3	OX Mountain	8/15/2005	46	1237.16
3	OX Mountain	8/16/2005	87	2266.95
3	OX Mountain	8/22/2005	63	1719.07
3	OX Mountain	8/23/2005	23	609.45
3	OX Mountain	8/24/2005	14	333.58
Aug Total			**317**	**8343.40**
3	OX Mountain	9/16/2005	11	277.82
3	OX Mountain	9/17/2005	18	338.58
Sept Total			**29**	**616.40**
Class III Totals			**2831**	**74014.00**

Table 12. Summary of Off-Hauled Soil Loads
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Class	Landfill	Date	Truck Loads	Tons
1	Kettleman City	8/8/2005	16	390.72
1	Kettleman City	8/9/2005	18	433.49
1	Kettleman City	8/10/2005	17	404.16
1	Kettleman City	8/12/2005	18	438.04
1	Kettleman City	8/13/2005	9	206.79
1	Kettleman City	8/20/2005	16	396.43
1	Kettleman City	8/23/2005	14	339.81
1	Kettleman City	8/24/2005	6	144.02
1	Kettleman City	8/25/2005	3	75.98
August Total			**117**	**2829.44**
1	Kettleman City	9/16/2005	13	320.37
1	Kettleman City	9/17/2005	14	342.95
1	Kettleman City	9/19/2005	6	151.13
September Total			**33**	**814.45**
Class I Totals			**150**	**3643.89**

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Table 13. Daily Log of Field Activities
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	**Date**	**Activity**	**Samples Collected**	**Class III hauled (loads)**	**Class I hauled (loads)**	**Other**
	2005					
Wed	May 11	Abandoned monitoring well LF6GW102 by overdrilling and grouting (Gregg Drilling--Hollow stem).				
	Week 1					
Mon	May 23	Pre-construction meeting. PSEC mobilized equipment.		0		
Tues	May 24	Mobilized equipment. Began excavation and hauling (south west corner).		70		
Wed	May 25	Mobilized equipment. Excavation, loading, hauling (south west corner).		108		
Thurs	May 26	Received 4 drums from Geomatix / Bldg. 1451. Staged onsite. Excavated, loaded and hauled (west central, north). Erected temporary fencing adjacent to historic wall. Removed trees in north portion of site. These trees were not considered part of the Redwood Grove.		127		
Fri	May 27	Excavated, loaded and hauled (west central, north).		150		
	Week 2					
Mon	May 30	Holiday.		0		
Tues	May 31	Excavated, loaded, hauled (west central). Decided to allow 3' buffer along historic wall then match grading plan.		217		
Wed	June 1	Nesting bird survey completed in Redwood Grove. 72" storm drain exposed in north portion of site. Consultation with Trust Forester on excavation limits around Redwood trees. Discussed irrigation. Excavated, loaded, hauled (west central).		178		
Thurs	June 2	Excavated, loaded, hauled (west central and north).		151		
Fri	June 3	Transformer and Pole removed. Excavated, loaded and hauled (west and north).		67		
	Week 3					
Mon	June 6	Excavated, loaded and hauled (west central). Pothole exploration of spring in north. Began cleaning historic wall with compressed air and mini excavator. Began removing berm adjacent to Redwoods. Discussed depth of historic wall and exploratory methods. Discussed 72" storm drain and proximity to Building 225.		150		
Tues	June 7	Excavated, loaded and hauled (west central, south). Groundwater encountered in excavation. Decided to clean 8' of soil off rock wall, then match grade. Removed inactive electric lines. Demo of concrete structures in south / SE. Began irrigation of Redwoods using water truck.		98		
Wed	June 8	Florez onsite to abandon storm drain (northeast).		0		
Thurs	June 9	Rain. Some excavation and stockpiling.		0		

Table 13. Daily Log of Field Activities
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	**Date**	**Activity**	**Samples Collected**	**Class III hauled (loads)**	**Class I hauled (loads)**	**Other**
Thurs	June 9	The original confirmation sampling plan was submitted to the DTSC by the Trust on **June 9, 2005**. It included planned 15 bottom samples and 25 perimeter samples. Samples were generally collected along the 75' by 75' sampling grid that was superimposed upon the grading plan map. As specified in the RAP, the sampling is 75' by 75' for bottom samples, and every 75' for perimeter / sidewall samples. Bottom samples collected where grid lines intersect on the floor of the excavation. Perimeter samples collected where grid lines intersect the site boundary. Sidewall samples were not anticipated, as the grading plan was for slopes up to 2:1.				
Fri	June 10	Rain. No activities.		0		
	Week 4					
Mon	June 13	Excavated, loaded and hauled. (west central). Frac tank (20,000 gal) onsite. All ivy removed from historic wall.		64		
Tues	June 14	Excavated, loaded and hauled (west central). Meeting held (see below).		105		
Tues	June 14	On **June 14, 2005** during a site walk with the NPS and DTSC, It was decided that 1) The small wedge of land in the south west corner of the site should attempt to be included within the 6A boundary. It should be sampled and if sample results met clean up goals, this area would be included within the 6A boundary. 2) Soil sampling would be completed beneath the 72" diameter storm drain once it was removed. 3) Samples would be collected of soil in basements 4) The confirmation sampling grid would be adjusted if hot spots were encountered.				
Wed	June 15	Excavated, loaded and hauled (west central, south). Discussed chasing fill soils below planned grade, and leaving native if above planned grade. Break high pressure water line, water drains to low point at north end of site.		106		
Thurs	June 16	Excavated, loaded and hauled (south west). Began dewatering at 1 gpm. Rain stops excavation and hauling. Began confirmation sampling.	LF6EX102-109	92		
Fri	June 17	Rain. No activities.		0		
	Week 5					
Mon	June 20	Excavated, loaded and hauled (south west). Exposed south end of 72" storm drain. Determined 72" storm drain has 4' of fall across site.		117		
Tue	June 21	Excavated, loaded and hauled (west, storm drain). Loaded and demo'd concrete for recycling (5 loads). Dewatering rate= 3 gpm. Determine 72" SD has a bend in it.		145		
Wed	June 22	Excavated, loaded and hauled (west central, south). Potential sewer line emptying into site below rock wall. Onsite meeting. Dewatering at 3.5 gpm.		121		

Table 13. Daily Log of Field Activities
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Day	Date	Activity	Samples Collected	Class III hauled (loads)	Class I hauled (loads)	Other
		Daily Field Activities May 2005 to January 2006				
Wed	June 22	On **June 22, 2005** during an on-site meeting with representatives of the NPS, DTSC and RWQCB, sampling strategy was discussed, especially as it pertained to changes that may be made to the original grading plan based on site conditions and fill types exposed. It was agreed that the original plan of grid and perimeter sampling was still adequate, but that more samples may be requested based on fill types encountered and slope / sidewall considerations, if applicable.				
Thurs	June 23	Excavated (west central). PSEC delivered submittal for removal of 72" storm drain.	LF6EX110-116	0		
Fri	June 24	Excavated (north, east central) Decision made that there would be no trenching against historic rock wall.	LF6WW200	0		
	Week 6					
Mon	June 27	Excavated (south, east central). Removed foundation wall in south slope of excavation.	LF6EX117	0		
Tues	June28	Excavated (southeast, east central). Discharged Frac tank to sanitary sewer.	LF6EX118-119	0		
Wed	June 29	Excavated soil adjacent to 72" storm drain. Removed portions of 72" storm drain piping. Installed 4" PVC diversion piping. Concrete broken up and staged. Deferred to Ryan Seelbach (Trust PM) on protocol for sampling underneath 72" storm drain. DTSC onsite.	LF6EX120-121 LF6SP100	0		
Thurs	June 30	Removed portions of 72" storm drain piping. Installed 4" PVC diversion piping. Dams built along storm drain to contain groundwater. Loaded out 6 trucks of concrete. Decision to leave 72 feet of storm drain in place adjacent to bldg. 225. Ryan met with DTSC.	LF6EX122, LF6SP101, LF6SP103	0		6 Concrete
Fri	1-Jul	Removed portions of 72" storm drain piping. Installed 4" PVC diversion piping. Built dam to prevent groundwater flow to 72" storm drain. Transformer oil drummed onsite. Power pole removed and staged onsite.	LF6EX123-124, LF6SP102	0		
	Week 7					
Sun	July 3	Accidental release of impounded groundwater to storm drain at 5-10 gpm. Estimated 20,000 gallons released to storm drain outlet.				
Mon	July 4	Holiday.				
Tue	July 5	Excavated, loaded and hauled. Re-built dam at north end of site. Discussed grout backfill of 72" storm drain that is to remain in place, and planned for trench backfill. Collected water sample. Emptied Geomatrix soil drums and disposed with onsite soil.	LF6WW201			
Wed	July 6	Loaded concrete and rebar (5 trucks) material for recycler plant located in Oakland. Over-excavated east of Redwood Grove. Fuel lines encountered, some soil staining. Decision made to use imported dune sand backfill to bridge trench in 72" storm drain. Site walk with DTSC (see below).	LF6EX125-128	0		16 loads of concrete recycled

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		Daily Field Activities May 2005 to January 2006				
Day	**Date**	**Activity**	**Samples Collected**	**Class III hauled (loads)**	**Class I hauled (loads)**	**Other**
Wed	July 6	On **July 6, 2005**, during a site walk with the DTSC, the original construction sampling strategy was modified to include: 1) Soil in the vicinity of the Redwood trees clearly has a fill component that includes asphalt and concrete debris, as well as a layer of chert gravel. The decision was made to chase the asphalt fill into the tree root zone under the guidance of the Trust forester, Peter Erlich, then collect 4 sidewall samples. 2) Soil samples in the vicinity of the storm drain that exceed clean up goals will have to be over-excavated 3) Any fuel contaminated soils that are associated with fuel distribution system (FDS) lines will be sampled in accordance with the FDS contingency plan and site closure will be under CERCLA guidelines. 4) Four additional samples were marked in the field by the DTSC. These samples were all just to the east of the removed 72" storm drain, and were to be collected 1.5 to 2.0 feet below ground surface. Two samples were in native soil, two samples were in fill.				
Thurs	July 7	Removed stained soil associated with FDS lines. Removed fill soil west of Redwood Grove under direction of Peter Erlich, Trust Forester.	LF6EX129-133	23		
Fri	July 8	Excavated, loaded and hauled (east side). Trust decided to adjust grading plan on east edge of site to 1:1 slope. Trust implemented fuel contingency plan. Excavated stained soil from FDS lines.	LF6SP104-105			
Fri	July 8	On **July 8, 2005**, the Trust emailed RWQCB detailing FDS piping and stained soil encountered during demolition and removal of the foundations associated with the former nurses' quarters. Approximately 55 cubic yards of stained soil was removed. Sampling was conducted in accordance with Section 4.6.3 of the Petroleum Contingency Plan. One sample collected at the deepest part of the excavation and four sidewall samples collected, one for each 25 feet of sidewall. No separate contingency report will be prepared, rather the site clean up report would be detailed in an appendix to the Construction Completion Report for the Fill Site 6A remedial action.				
	Week 8					
Mon	July 11	Analytical results showed that concrete rubble soil from east side has elevated lead. Additional testing required. Dewatering system fully functional with centrifugal and sump pumps.		0		
Tues	July 12	Excavated southeast corner of site. Removed old haul road. GPS storm drain excavation and sample locations. Collected bulk sample of dune sand. Demob second excavator.		0		
Wed	July 13	Hauled clean import soil from dune restoration stockpile to site. 5 trucks (end dumps) of imported fill. Dewatered 72" storm drain trench, backfilled and compacted trench. (Standing water in footprint; 71,600 gal, 90% dewatered approximately 64,000 gal discharged through frac tank to sanitary). Performed compaction testing. Set 6" PVC storm drain diversion pipe at 1' fall per 100' length (south section). GPS remaining points. Loaded onsite at dune sand location.		0		Dune Sand import--42 loads (630 yds)

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Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	**Date**	**Activity**	**Samples Collected**	**Class III hauled (loads)**	**Class I hauled (loads)**	**Other**
Thurs	July 14	Backfilled storm drain trench on top of 6" diversion pipe (south section). Hauled clean dune sand to site (25 loads, 175 yards). Collected surface water and frac tank water samples. Set 6" PVC through remain-in-place 72" SD. Demob loader.	LF6SW202-203	0		Dune Sand import--25 loads (175 yds)
Fri	July 15	Profiling sample LF6SP107 collected for PSEC of concrete rubble fill (1,780 yds). Set 6" PVC storm drain diversion through north end of site. Dewatered the collection sump according to plan. Storm drain flow diverted through 6" pipe. Built dewatering sump at low point in North end of site. Connected impounded groundwater to dewatering system.	LF6GW204, LF6WW205, LF6SP106-107	0		
	Week 9					
Mon	July 18	Trust decided to clear basement structures and fill down to native. Laborers removed ivy under Redwoods. Compacted clay soil (Colma) on top of storm drain using dozer.		0		
Tue	July 19	Excavated water line to fire hydrant, and prepared to cut and cap. Removed haul load and did final cleaning of floor excavation. Hauled additional clean stockpile soil to 72" storm drain area.		0		
Wed	July 20	Laborers continued removal of ivy. Compacted stockpiled soil on top of 72" storm drain excavation. Met with DTSC (see below).	LF6EX134-136	0		
Wed	July 20	On **July 20, 2005**, during an onsite meeting with the DTSC, further over-excavation and sampling was discussed. 1) Fuel line sampling would be done under the Petroleum Contingency Plan as previously discussed with the RWQCB. 2) Perimeter sample LF6EX111 (2.0) which had elevated levels of petroleum hydrocarbons associated with fill containing creosote treated wood, would be over-excavated at least 1 foot to remove suspect fill and resampled. 3) Perimeter sample LF6EX108 (3.0), which had an exceedence of Aloclor, would not be resampled at this point in time, because residential clean up levels may be applied at the perimeter adjacent to the historic rock wall. 4) No further sampling would be done around the Redwoods. Fill soil surrounding the Redwoods was viewed as unlikely to sample below clean up goals, and removing any more of that soil would be detrimental to the Redwood tree's root systems. The Trust would pursue an LUC for that area of the site.				
Thurs	July 21	Collected samples for FDS line removal. Over-excavated at LF6EX111 and resampled. Scraped floor of excavation and cut dewatering ditches. Completed ivy removal under redwoods.		0		
Fri	July 22	Collected water sample from storm drain. Collected profiling sample of stockpile in southeast corner of site for PSEC (445 yds). No digging, no hauling. PSEC demobs for a week pending analytical results.	LF6SP108	0		

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Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	Date	Activity	Samples Collected	Class III hauled (loads)	Class I hauled (loads)	Other
	Week 10					
Mon	Aug 8	Trust PM decided that 72" storm drain needs to remain in place to be de-watered prior to grouting. Loaded and hauled Class I material.		0	16	
Tue	Aug 9	Excavated, loaded and hauled primary site (southeast).		19	18	
Wed	Aug 10	Discussed clean native stockpile in north central portion of site. Trust PM decided to spread and compact on west slope. Completed cutting and capping of fire hydrant. Removed old haul road down to undisturbed native.		0	16	
Wed	Aug 10	On **August 10, 2005**, during an onsite meeting with the NPS and DTSC, the boundary line delineating FS6A from FS6B was discussed. It was generally assumed that the FS6A boundary would encompass the area where all samples have met clean up goals, and the dividing line between 6A and 6B would generally fall at the base of the slope where fill soil meets native soil. The perimeter area which is characterized by fill soil types would generally fall in land use control (LUC) depending upon chemicals detected and levels of exceedence over cleanup goals, the DTSC could possibly provide a waiver to the LUC.				
Thurs	Aug 11	No activities.				
Fri	Aug 12	Spread clean native pile. Still too wet to place / compact on slope. Trust arranged lane closure for direct loading on Girard Road.		35	19	
Sat	Aug 13	Onsite regulatory meeting - no changes to sampling strategy. Excavated, loaded and hauled (central north). Dozer scraped surface soil east of Redwood Grove. Over-excavated sample 130. Removed 1 foot off slope.		30	8	
	Week 11					
Mon	Aug 15	Loaded and hauled soil, mapped soil types exposed in excavation (prior to restoration grading).	LF6EX103, LF6EX143-146	47		
Tue	Aug 16	Excavated, loaded and hauled soil.	LF6EX147	87		
Wed	Aug 17	No activities		0		
Thur	Aug 18	No activities		0		
Fri	Aug 19	No activities		0		
Sat	Aug 20	Loaded and hauled soil.			16	

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Presidio of San Francisco, California

Day	Date	Activity	Samples Collected	Class III hauled (loads)	Class I hauled (loads)	Other
		Daily Field Activities May 2005 to January 2006				
	Week 12					
Mon	Aug 22	Watershed Science (Watershed) mobilizes to site; began cutting dewatering channels. Responsibility for site dewatering transferred from PSEC to Watershed after 72" storm drain grouted. Dewatered storm drain approximately 12,000 gallons into frac tank.		63		
Tue	Aug 23	Loaded and hauled. McGuire Hester grouts 72" storm drain, 77 yards total. Watershed had cut dewatering channels. Over-excavated and resampled at 143, 134. Dewatered at 10 gpm.	LF6EX148-149	23	14	
Wed	Aug 24	Loaded and hauled. Trust requested geotechnical testing on placed fill. Watershed working on streambed channel and laying slopes back (south). Discussed additional tasks punch list with Trust. Off hauled concrete to Syar Richmond for recycling.		21	7	Concrete 9 loads
Thur	Aug 25	Loaded and hauled. Over-excavated at 108. PSEC demobs.	LF6EX150-153		3	Concrete 2 loads
	Week 13					
Mon	Aug 29	Collected water sample at dewatering sump.	LF6WW207			
Tue	Sep 13	PSEC remobed to site to remove Class I soil in southeast corner of site. Laborers manually removed isolated pieces of concrete, brick and debris from sidewalls of excavation. Onsite meeting. Watershed dewatered at approximately 30 gpm.				
Tue	Sep 13	On **September 13, 2005**, an onsite meeting with the NPS, DTSC and RWQCB reviewed remediation and site restoration progress. There was no discussion of additional sampling and no changes to the sampling strategy.				
Wed	Sep 14	Laborers manual removal of debris. Cut and plugged exposed utilities in Redwood Grove.				
Thur	Sep 15	Collected confirmation samples.	LF6EX154-158			
	Sep 23	On **September 23, 2005**, MACTEC and the Trust discussed locally elevated levels of selenium in the Colma Formation of this location. Additional over-excavation and re-sampling was not considered a method for reducing over all selenium levels at the site.				
Thur	Sep 29	Collected confirmation samples.	LF6EX100-101, LF6EX159			

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Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	Date	Activity	Samples Collected	Class III hauled (loads)	Class I hauled (loads)	Other
	Oct 5	On **October 5, 2005**, during an onsite meeting with the NPS, DTSC and RWQCB sampling strategy was changed to include further characterization of elevated copper levels in native soil. Sample LF6EX143 (24.5) which had been over-excavated and resampled as LF6EX148 (25.5). Nearby sample LF6EX132 (9.0) had been collected in fill soil and also had elevated copper above clean up goals. Three additional soil samples in native soil and one soil sample in fill soil were proposed to further characterize if native material had been impacted by fill soil placed on top of it. In addition, two water samples were proposed, one from an adjacent seep, and one from the effluent of an adjacent sub drain installed by Watershed. Water samples to be collected for dissolved metals, TPH-d-fo, and Hexavalent Chrome at the DTSC's request.				
Tue	Oct 18	Collected confirmation samples. Collected seep / sub drain water samples. Completed confirmation sampling.	LF6EX160-164, LF6SW208,-209			
Wed	Oct 20	ERRG hauled 132 loads (1452 yds) of Colma Fill from "Dust Bowl" stockpile.				132
Fri	Oct 21	ERRG hauled 134 loads (1474 yds) of Colma Fill from "dust bowl" stockpile. Watershed installed last of erosion control materials. Released impounded groundwater to storm drain.				134
Mon	Oct 24	PSEC hauled 48 loads (720 yds) of dune sand from GG Park CAS site.				48
Wed	26-Oct	Collected water quality parameters of onsite and off-site surface water.				
Tue	1-Nov	Collected water quality parameters of onsite and off-site surface water.				
Thus	Nov 3	PSEC hauled 82 loads (1230 yds) of dune sand from GG Park CAS site.				82
Fri	Nov 4	PSEC hauled 74 loads (1110 yds) of dune sand from GG Park CAS site.				74
Tue	8-Nov	Collected water quality parameters of onsite and off-site surface water.				
Tue	15-Nov	Collected water quality parameters of onsite and off-site surface water.				
Wed	Nov 16	Installed monitoring well LF6GW104 and LF6GW105.				
Thur	Nov 17	Installed monitoring well LF6GW106.				
Tue	29-Nov	Collected water quality parameters of onsite and off-site surface water.				
Fri	9-Dec	Collected water quality parameters of onsite and off-site surface water.				
Fri	16-Dec	Collected water quality parameters of onsite and off-site surface water.				

Table 13. Daily Log of Field Activities
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

		Daily Field Activities May 2005 to January 2006				
Day	Date	Activity	Samples Collected	Class III hauled (loads)	Class I hauled (loads)	Other
Tue	20-Dec	Collected water quality parameters of onsite and off-site surface water.				
Tue	27-Dec	Collected water quality parameters of onsite and off-site surface water.				
	2006					
Tue	3-Jan	Collected water quality parameters of onsite and off-site surface water.				
Mon	9-Jan	Collected water quality parameters of onsite and off-site surface water.				
		Load totals.		2414	117	

Checked GAL

Approved May

Table 14. Detected Inorganic Compounds in Soil Samples from Monitoring Well Borings
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

Sample Number	Sample Date	Analyzed Date	Antimony Value (mg/kg)	Qual	Arsenic Value (mg/kg)	Qual	Barium Value (mg/kg)	Qual	Beryllium Value (mg/kg)	Qual	Cadmium Value (mg/kg)	Qual	Chromium Value (mg/kg)	Qual	Cobalt Value (mg/kg)	Qual	Copper Value (mg/kg)	Qual	Lead Value (mg/kg)	Qual
LF6GW105(6.5)	11/16/2005	12/22/2005	ND(3.3)	UJ	6.3	A	240	J-	0.22	A	0.49	A	110	A	9.1	A	20	J	490	A
LF6GW105(10.0)	11/16/2005	12/22/2005	ND(3.0)	UJ	5.0	A	110	J-	0.20	A	0.35	A	57	A	7.1	A	12	J	250	A
LF6GW105(16.0)	11/16/2005	12/22/2005	ND(3.6)	UJ	4.6	A	67	J-	0.42	A	ND(0.30)	A	110	A	22	A	10	J	5.9	A
LF6GW106(3.0)	11/17/2005	12/22/2005	ND(2.8)	UJ	3.1	A	170	J-	0.32	A	ND(0.24)	A	61	A	12	A	12	J	5.1	A
LF6GW106(15.5)	11/17/2005	12/22/2005	ND(3.7)	UJ	1.8	A	45	J-	ND(0.12)	A	ND(0.31)	A	150	A	8.1	A	4.1	J	2.1	A

Sample Number	Sample Date	Analyzed Date	Mercury Value (mg/kg)	Qual	Molybdenum Value (mg/kg)	Qual	Nickel Value (mg/kg)		Selenium Value (mg/kg)		Silver Value (mg/kg)		Thallium Value (mg/kg)		Vanadium Value (mg/kg)		Zinc Value (mg/kg)	
LF6GW105(6.5)	11/16/2005	12/22/2005	4.5	A	ND(1.1)	A	70	A	ND(0.28)	A	ND(0.28)	A	0.67	A	53	A	350	J-
LF6GW105(10.0)	11/16/2005	12/22/2005	1.8	A	ND(0.99)	A	31	A	ND(0.25)	A	ND(0.25)	A	0.55	A	58	A	150	J-
LF6GW105(16.0)	11/16/2005	12/22/2005	ND(0.021)	A	ND(1.2)	A	79	A	ND(0.30)	A	ND(0.30)	A	0.45	A	97	A	38	J-
LF6GW106(3.0)	11/17/2005	12/22/2005	0.020	A	ND(0.95)	A	31	A	ND(0.24)	A	ND(0.24)	A	ND(0.24)	A	52	A	32	J-
LF6GW106(15.5)	11/17/2005	12/22/2005	ND(0.024)	A	ND(1.2)	A	58	A	ND(0.31)	A	ND(0.31)	A	0.34	A	55	A	29	J-

Checked GAL
Approved mg

Footnotes:
ND = Not Detected at the specific reporting level in parentheses.
Samples collected from wells within FS 6B Boundary: No Cleanup Goals Established.
Qualifiers (Qual)
J = Data are qualified as estimated. It is not possible to assess the direction of the potential bias. False positives or fales negativbes are unlikely to have been reported.
J- = Data are qualified as estimated, with a low bias likely to occur. False positives or false negatives are unlikely to have been reported.
U = Data are qualified as nondetected at the level in parentheses because the analyte was observed in an associated laboratory or field blank.

Table 15
Calculated 95 Percent Upper Confidence Limits on the Arithmetic Mean - Inorganics
Native Plant Zone
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco

	Sample Number	Depth (feet)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
PERIMETER SAMPLES	LF6EX103(3.0)	0-0.5	<3.3	4.0	75	0.45	0.61	99	12	14	25	0.031	<1.1	71	0.40	<0.28	<0.55	66	34
	LF6EX104(2.0)	0-0.5	<2.6	4.2	94	0.33	0.76	53	8.8	25	150	0.32	<0.85	46	**0.68**	<0.21	<0.21	39	**180**
	LF6EX105(1.0)	0-0.5	<3.0	4.1	120	0.41	0.71	71	16	26	140	0.18	<1.0	54	**1.0**	<0.25	<0.25	53	**94**
	LF6EX106(1.0)	0-0.5	<3.5	2.9	160	0.52	0.48	39	16	**63**	33	0.083	<1.2	34	**0.56**	<0.29	<0.29	37	58
	LF6EX107(0.5)	0-0.5	<2.8	4.0	160	0.51	0.61	48	13	41	78	0.11	<0.95	50	**0.59**	<0.24	<0.24	44	**81**
	LF6EX110(1.0)	0-0.5	<3.6	6.0	120	0.59	**1.1**	130	15	24	35	0.022	<1.2	**140**	<0.30	<0.30	<0.30	73	57
	LF6EX112(1.5)	0-0.5	<3.2	4.4	170	0.51	**0.86**	65	14.0	32	27	0.16	<1.1	51	<0.27	<0.27	<0.27	63	59
	LF6EX113(1.0)	0-0.5	<3.5	1.7	46	0.25	0.53	81	10.0	6.7	2.9	<0.22	<1.2	62	<0.29	<0.29	<0.29	51	28
	LF6EX114(2.0)	0-0.5	<3.0	4.2	130	0.37	0.78	66	11	24	150	0.17	<1.0	49	<0.25	<0.25	<0.25	47	**110**
	LF6EX115(2.0)	0-0.5	<2.5	3.8	87	0.39	0.59	100	8.2	12	5	0.061	<0.82	59	**0.68**	<0.21	<0.21	58	31
	LF6EX116(2.5)	0-0.5	<2.8	3.7	42	0.25	0.4	47	6.6	14	11	0.022	<0.92	29	**0.63**	<0.23	<0.23	42	29
	LF6EX137(4.0)	0-0.5	<3.1	**11**	65	0.33	**1.1**	65	11	31	23	0.051	<1.0	50	<0.26	<0.26	<0.26	58	49
	LF6EX138(3.0)	0-0.5	<3.5	3.3	120	0.34	**1.0**	90	13	21	10	0.03	<1.2	67	<0.29	<0.29	<0.29	71	42
	LF6EX149(5.0)	0-0.5	<3.3	0.91	39	0.13	0.55	69	8.7	3.9	2.3	<0.028	<1.1	58	**0.82**	<0.28	<0.28	46	25
	LF6EX150(5.0)	0-0.5	<3.4	2.5	80	0.25	0.76	80	12	13	20	0.043	<1.1	71	**1.3**	<0.28	<0.28	57	51
	LF6EX152(1.5)	0-0.5	<2.6	2.8	120	0.38	**0.84**	61	14	17	14	0.099	<0.87	41	**1.6**	<0.22	<0.22	60	47
BOTTOM SAMPLES	LF6EX120(21.5)	0-0.5	<0.20	4.3	70.1	0.22	<0.098	77.4	11.3	8.2	21.4	0.041	0.12	55.8	<0.20	<0.098	<0.098	39.2	33.4
	LF6EX121(20)	0-0.5	3.9	1.4	70	0.26	0.52	84	6.6	7.2	3.1	<0.018	<1.0	82	<0.26	<0.26	<0.26	49	24
	LF6EX122(16)	0.5-1.0	<3.5	1.7	47	0.17	0.49	80	8.0	8.3	5.2	<0.019	<1.2	65	**0.65**	<0.29	<0.29	43	25
	LF6EX123(12.5)	0.5-1.0	<3.5	1.9	46	0.2	0.62	65	10	8.3	3.3	0.041	<1.2	54	<0.29	<0.29	<0.29	45	29
	LF6EX124(10)	0.5-1.0	<3.4	2.5	67	0.27	0.62	69	12	13	28	<0.019	<1.1	50	0.41	<0.28	<0.28	52	52
	LF6EX125(10)	1.5-2.0	3.2	4.1	70	0.22	0.7	43.5	6.45	21	108	0.127	<0.81	34	**0.89**	<.020	<0.20	26.5	**111**
	LF6EX126(13.0)	1.5-2.0	<3.1	4.2	100	0.48	**1.2**	69	11	18	21	0.085	<1.0	36	**1.4**	<0.26	<0.26	56	42
	LF6EX127(25.0)	1.5-2.0	<3.8	3.2	**360**	0.38	**0.96**	110	9.4	8.1	2.9	<0.018	<1.3	80	**1.1**	<0.32	<0.32	50	27
	LF6EX128(25.0)	1.5-2.0	<3.2	4.1	93	0.46	**1.4**	110	11	11	3.5	0.026	<1.1	95	**1.7**	<0.27	<0.27	64	31
	LF6EX135(24.0)	0-0.5	<3.2	3.2	57	0.325	**0.85**	82.5	8.25	6.65	3.1	<0.018	<1.1	49.5	<0.27	<0.27	<0.27	63.5	27.5
	LF6EX136(11.0)	0-0.5	<3.0	2.5	55	0.305	**0.91**	120	9.3	5.5	3.25	<0.022	<1.0	71.5	<0.25	<0.25	<0.25	67	29
	LF6EX144(23.0)	0-0.5	<2.8	2.6	99	0.47	0.55	110	9.7	11	3.7	0.057	<0.93	74	<0.23	<0.23	<0.23	64	30
	LF6EX146(16.0)	0-0.5	<3.2	2.0	36	0.21	0.27	69	9.4	4.5	2.3	0.069	<1.1	60	<0.27	<0.27	<0.27	34	17
	LF6EX148(25.5)	0-0.5	<3.3	2.4	86.5	0.38	0.79	95.5	6.85	9.95	4.35	<0.031	<1.1	72.5	0.46	<0.28	<0.28	63.5	30.5
	LF6EX160(28.0)	0-0.5	<3.6	4.2	71	0.29	**0.97**	89	18	9.0	3.2	<0.026	<1.2	80	<0.30	<0.30	<0.30	65	28
	LF6EX161(27.5)	0-0.5	<4.2	1.8	90	0.18	**0.87**	97	12	7.7	3.2	<0.023	<1.4	93	<0.35	<0.35	<0.35	57	39
	LF6EX162(21.5)	0-0.5	<3.1	3.1	78	0.26	**0.86**	120	6.6	9.0	3.6	<0.029	<1.0	60	<0.26	<0.26	<0.26	57	28
	LF6EX163(27.5)	0-0.5	<3.3	6.0	74	0.32	**1.5**	**290**	12	13	4.1	0.025	<1.1	**140**	<0.28	<0.28	<0.28	**120**	41
Cleanup goal			5.0	6.2	320	10	0.8	140	21	49	160	0.4	12	110	0.5	2.0	1.0	90	60
95 percent UCL			2.1	4	109.5	0.4	**0.85**	97.6	11.6	19.6	102.3	0.08	0.55	71.5	**0.86**	0.14	0.14	60	**72.4**
Method of calculation			95% Cheb	Gamma	Gamma	t-test	t-test	Gamma	t-test	Gamma	99% Cheb	99% Cheb	t-test	Gamma	95% Cheb	t-test	t-test	Gamma	95% Cheb

Notes:
Results exceeding clenup levels are bold
t-test Student's t-test
H-UCL Land method for lognormal distribution
Cheb Chebyshev inequality using the specified confidence interval

Checked GAL
Approved MG

Table 16
Calculated 95 Percent Upper Confidence Limits on the Arithmetic Mean - Inorganics
Landscape Zone
Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco

	Sample Number	Depth (feet)	Antimony (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Beryllium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Molybdenum (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Vanadium (mg/kg)	Zinc (mg/kg)
PERMETER SAMPLES	LF6EX100 (6.5)	0-0.5	<3.0	5.15	120	0.415	**0.99**	72.5	12	13.5	6.25	<0.026	<1.0	45.5	<0.25	<0.25	0.50	67	38
	LF6EX101 (1.0)	0-0.5	<2.9	4.0	68.5	0.205	0.675	49	8.65	13.5	22	0.045	<0.97	33	<0.24	<0.24	<0.24	52	36.5
	LF6EX102(3.0)	0-0.5	<2.9	3.9	78	0.36	0.4	55	9	16	31	0.17	<0.96	39	0.58	<0.240	<0.24	47	38
	LF6EX109(0.5)	0-0.5	<2.2	**6.6**	130	0.44	0.65	42	12	38	33	0.16	<0.72	47	0.56	<0.18	<0.18	39	76
	LF6EX152(1.5)	0-0.5	<2.6	2.8	120	0.38	**0.84**	61	14	17	14	0.099	<0.87	41	**1.6**	<0.22	<0.22	60	47
	LF6EX156(2.0)	0-0.5	<3.1	**7.2**	95	0.29	**0.88**	55	11	16	8.9	0.065	<1.0	42	<0.26	<0.26	<0.26	53	43
	LF6EX158(1.0)	0-0.5	<3.3	4.5	88	0.31	**1.2**	74	13	12	42	0.31	<1.1	53	<0.27	<0.27	<0.27	56	**210**
	LF6EX159(1.0)	0-0.5	<2.8	5.5	99	0.21	**0.95**	96	11	8.0	28	0.24	<0.93	78	<0.23	<0.23	0.38	65	50
SIDEWALL SAMPLES	LF6EX131(6.0)	0-0.5	<3.3	2.9	110	0.39	**1.1**	81	11	29	63	0.059	<1.1	45	**1.2**	<0.27	<0.27	54	**70**
	LF6EX132(9.0)	0-0.5	<3.0	2.0	380	0.67	**1.2**	16	11	110	8	<1.0	<1.0	18	**2**	<0.25	<0.25	38	16
	LF6EX133(2.5)	0-0.5	<3.2	5.4	65	0.4	**1.2**	87	10	11	6.5	<0.018	<1.1	60	**1.5**	<0.26	<0.26	55	33
	LF6EX145(6.0)	0-0.5	<3.2	3.8	70	0.38	0.55	97	10	10	3.2	<0.029	<1.1	70	<0.27	<0.27	<0.27	61	31
BOTTOM SAMPLES	LF6EX151(6.5)	0-0.5	<3.7	1.7	100	0.31	0.72	90	8.6	6.5	4.6	<0.020	<1.2	40	0.80	<0.31	0.48	62	28
	LF6EX154(10.0)	0-0.5	<2.7	3.3	32	0.25	0.71	79	9.1	4.6	3.2	<0.027	<0.88	53	<0.22	<0.22	<0.22	62	24
	LF6EX155(7.0)	0-0.5	<3.1	3.2	56	0.22	**0.87**	130	8.5	2.8	3.5	<0.027	<1.0	52	<0.26	<0.26	<0.26	80	25
	LF6EX157(5.5)	0-0.5	<2.4	5.7	68	0.19	**0.87**	82	11	8.2	45	0.21	<0.81	71	<0.20	<0.20	<0.20	58	68
Cleanup goal			5.0	6.2	500	20	0.8	140	48	120	300	1.6	300	110	1.1	2.0	1.0	90	60
95 percent UCL			1.6	4.9	136.4	0.39	**0.98**	84.6	11.3	32.7	31.7	0.22	0.57	55.9	**1.6**	0.13	0.33	61.4	**70.7**
Method of caluclation			t-test	t-test	Gamma	t-test	t-test	t-test	t-test	H-UCL	Gama	Gamma	t-test	t-test	95% Cheb	t-test	95% Cheb	t-test	95% Cheb

Notes:
Results exceeding clenup levels are bold
t-test Student's t-test
H-UCL Land method for lognormal distribution
Cheb Chebyshev inequality using the specified confidence interval

Checked GAL
Approved MAJ

Table 17: Summary of Deviations from RAP and Clean Closure Work Plan
Fill Site 6A Construction Completion Report
Presidio of San Francisco, California

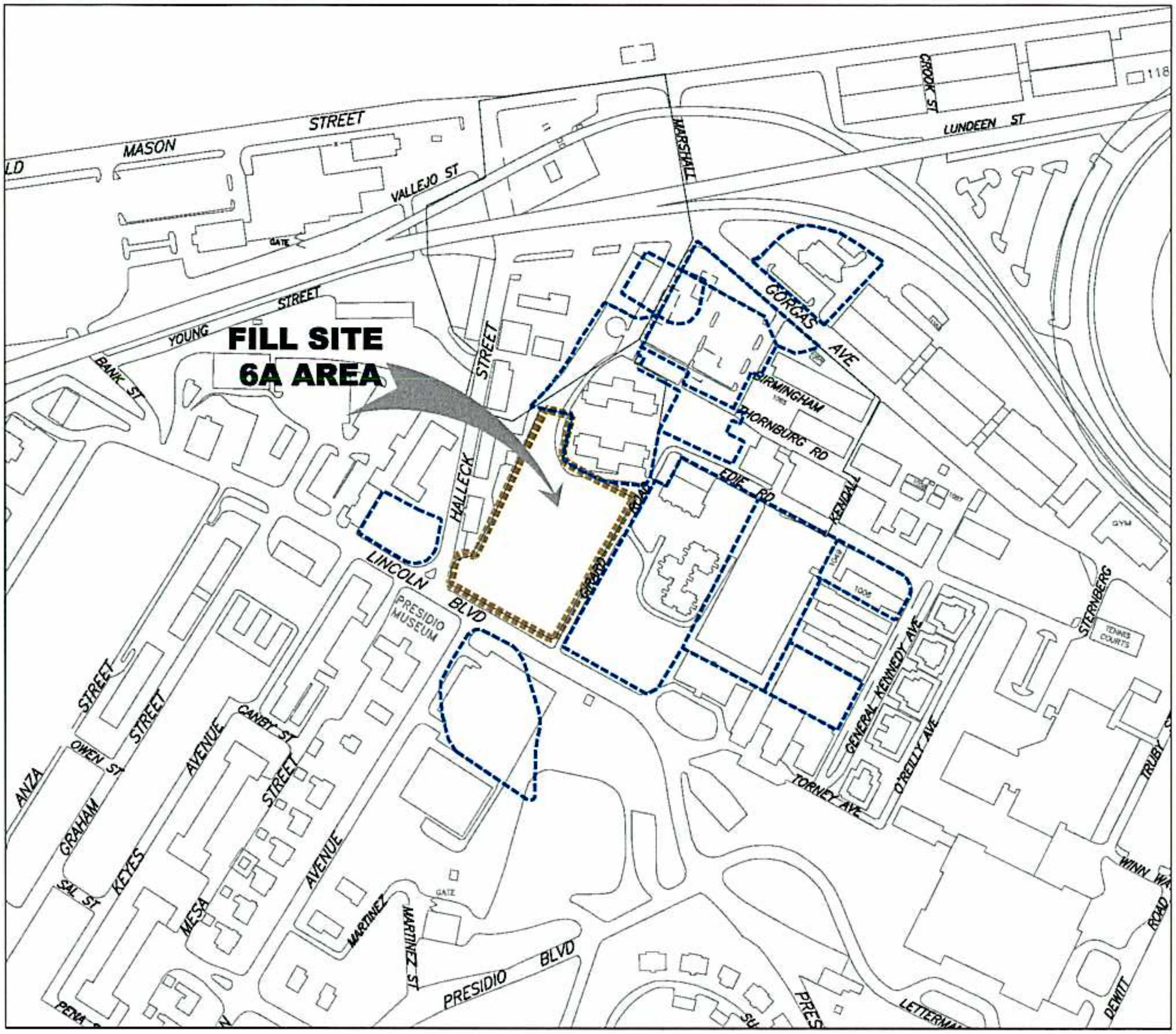
RAP/Work Plan Requirement	Deviation	Comment
Per the RAP, cleanup levels were to residential and ecological special status species across the site.	Based on planned re-use, the Site divided into two zones and cleanup levels were revised accordingly: Native Plant Zone - Residential Special Status Species CULs Landscape Zone - Residential ecological buffer CULs The Redwood Grove island was designated for protection as part of the planned reuse. Land use controls (LUCs) and Land Use Notifications (LUNs) are proposed for areas that do not meet revised cleanup levels based on planned re-use.	The RAP stated that at the time of its preparation, future planned use had not been defined and that one set of stringent cleanup levels were proposed to allow for possible future uses. Future re-use was defined after submittal of the RAP and the cleanup levels were modified accordingly. Fill and building structures were not removed near the site boundaries in areas excavation might impact the integrity of roads, infrastructure, or historic features Fill was left in the Redwood Grove to protect trees that were part of the planned restoration in the Landscape Zone.
Per the RAP, achieve clean closure for all inorganic constituents of concern.	Clean closure levels were not met for selenium and cadmium (cadmium was a PCOC).	Neither selenium nor cadmium left in place are believed to be from contamination left in place. The concentrations left in place are believed to be site-specific background conditions.
For the work plan, work would be sequenced so that restoration activities would follow excavation activities; prior to restoration activities, an interim survey would be performed to establish the volume of soil excavated.	Backfill was imported and placed in the storm drain trench and Landscape Zone prior to completion of final excavation work in other portions of the site; as a result, survey of post excavation/pre-restoration grades was not performed to estimate the volume of soil excavated.	Backfill was imported to the Landscape Zone prior to completion of excavation to complete grading prior to the start of the rainy season. Restoration activities were performed only in areas after confirmation sampling analytical results were evaluated and it was determined that cleanup levels were met.

Table 17: Summary of Deviations from RAP and Clean Closure Work Plan
Fill Site 6A Construction Completion Report
Presidio of San Francisco, California

RAP/Work Plan Requirement	Deviation	Comment
FS 6A boundary was defined in the RAP.	The FS 6A boundary was expanded to include a wedge from FS 6B in the southeast corner of the site. Two samples (LF6EX105 and 107) were collected within a small wedge of land in the southwest corner of the Site (FS 6B) just west of Building 222.	This area was incorporated within the FS 6A boundary during an on-site meeting among stakeholders on June 14, 2005.
Per the work plan, complete removal of the storm drain pipe.	A segment of storm drain pipe was left in place.	Based on concerns raised by the DTSC and the Trusts, it was determined that an approximately 72-foot long segment of the pipe was situated too close to historic Building 225 to allow safe removal of the storm drain without installation of protective shoring and/or tiebacks and would therefore be left in place.
Per the work plan, weekly onsite meetings would be held during construction between the Trust, NPS, and regulatory agencies	Meetings were held on an as-needed basis.	Based on project requirements and availability of meeting participants.
Over-excavated areas would be performed in accordance with Work Plan specifications that the outer limits of the excavation would be located ½ the distance between sample locations (37.5 feet) where analytical results indicated constituents greater than the cleanup levels	Over-excavated areas were performed based on consultation with stakeholders during on-site meetings, visual clues, such as odors or staining, the magnitude of the original exceedances, and field judgment.	A list of over-excavated areas, including rationale is provided in Table 8.

Checked: GAC
Approved: MG

FIGURES



EXPLANATION

FILL SITE 6A

FILL SITE 6B INVESTIGATION AREAS

NOTE: This plate shows proposed investigation areas for Fill Site 6B. Work was only performed in Fill Site 6A for this project. The limits of Fill Site 6B will be further defined in a Remedial Action Plan for that site.

0 400 800

SCALE IN FEET

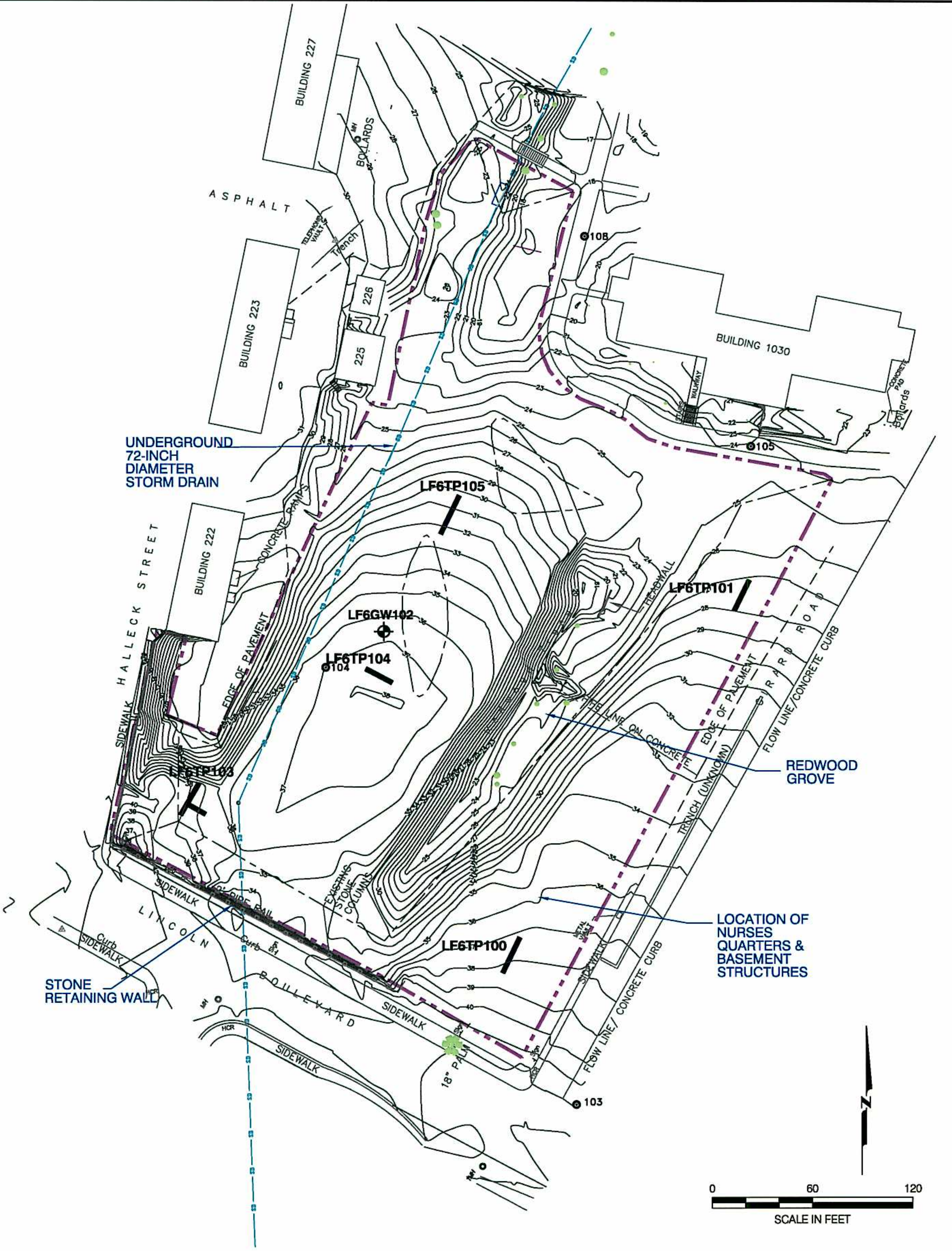
55213021.DWG 1.0
20060331.1454

MACTEC

Site Location Map
Completion and Certification Report
Fill Site 6A, Presidio San Francisco
San Francisco, California

FIGURE
1

DRAWN	JOB NUMBER	CHECKED	CHECKED DATE	APPROVED	APPROVED DATE
LC	55213 00312	GAL	03/06	MEJ	



EXPLANATION

BOUNDARY OF FS6A REMEDIAL ACTION AREA

LF6TP104 TEST PIT (FROM TREADWELL-ROLLO, 2004)

LF6GW102 SHALLOW GROUNDWATER MONITORING WELL (FROM TREADWELL-ROLLO, 2004)

72 in. STORM DRAIN

NOTE: TOPOGRAPHIC CONTOURS WITH 1-FOOT INTERVAL FROM PRE-CONSTRUCTION SURVEY.

SOURCE: TOPOGRAPHIC CONTOURS FROM TOPO SURVEY BY CHAUDHARY & ASSOCIATES, INC., MAY 16, 2003.

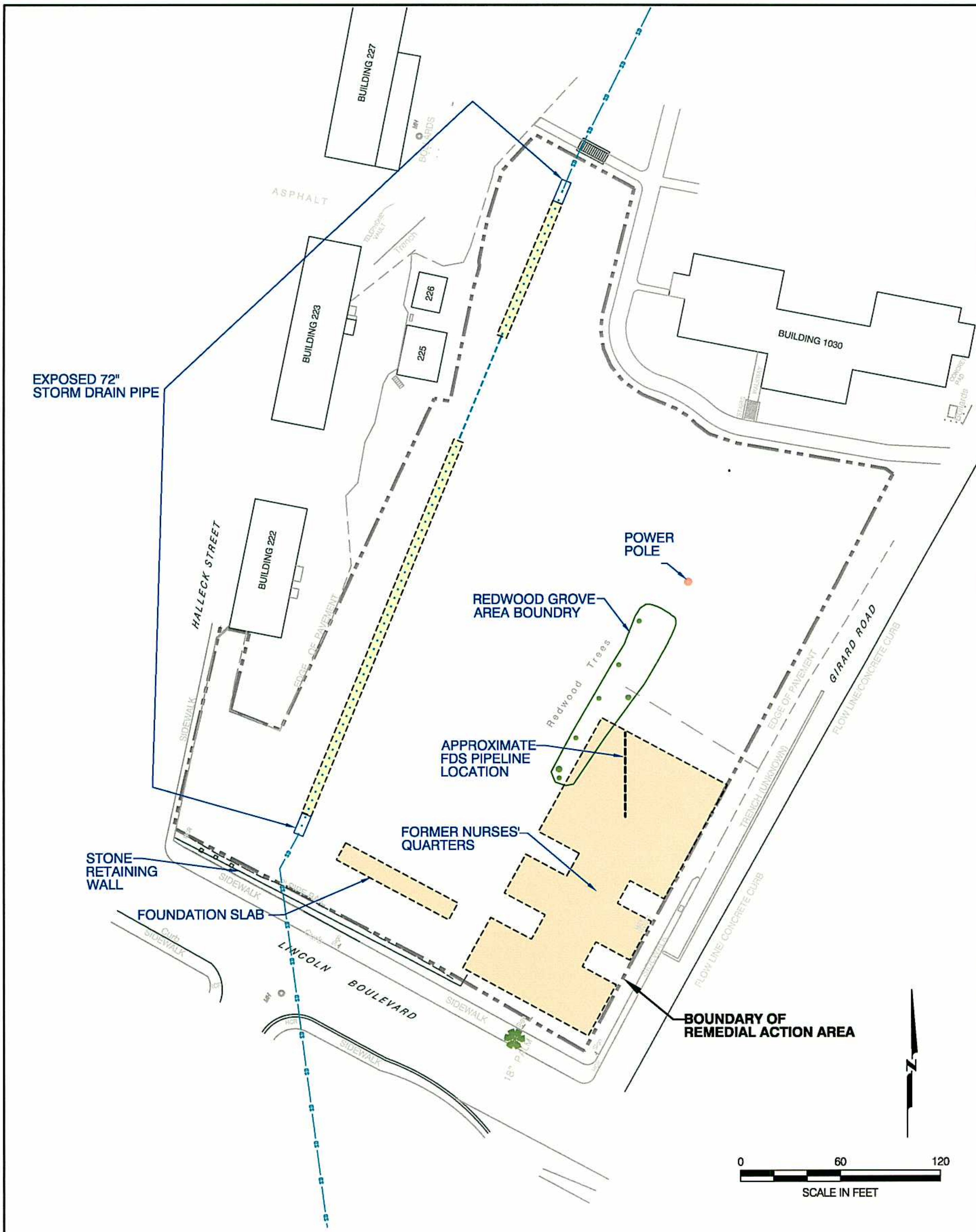
55213023.DWG 96.0
20060508.1429

MACTEC

Preconstruction Site Conditions and Features
Construction Completion Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE
2

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	Maj	



EXPLANATION

BOUNDARY OF REMEDIAL ACTION AREA

72 in. STORM DRAIN - where dashed, has been abandoned in place; where dotted, has been removed

FOUNDATION MATERIALS

EXCAVATED 72-INCH STORM DRAIN

DRAFT

55213022.DWG 96.0
20060801.1003

MACTEC

Approximate Locations of Structures, Basements, and Foundations Encountered During Remediation
Construction Completion Report, Fill Site 6A
Presidio Trust, Presidio of San Francisco
San Francisco, California

FIGURE 3

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	mg	

EXPLANATION

BOUNDARY OF REMEDIAL ACTION AREA

72 in. STORM DRAIN - where dashed, has been abandoned in place; where dotted, has been removed

LIMITS OF OVER-EXCAVATION AREAS

NATIVE SOIL (COLMA FORMATION)

FILL SOIL

PLACED FILL - placed prior to restoration activities

DRAFT

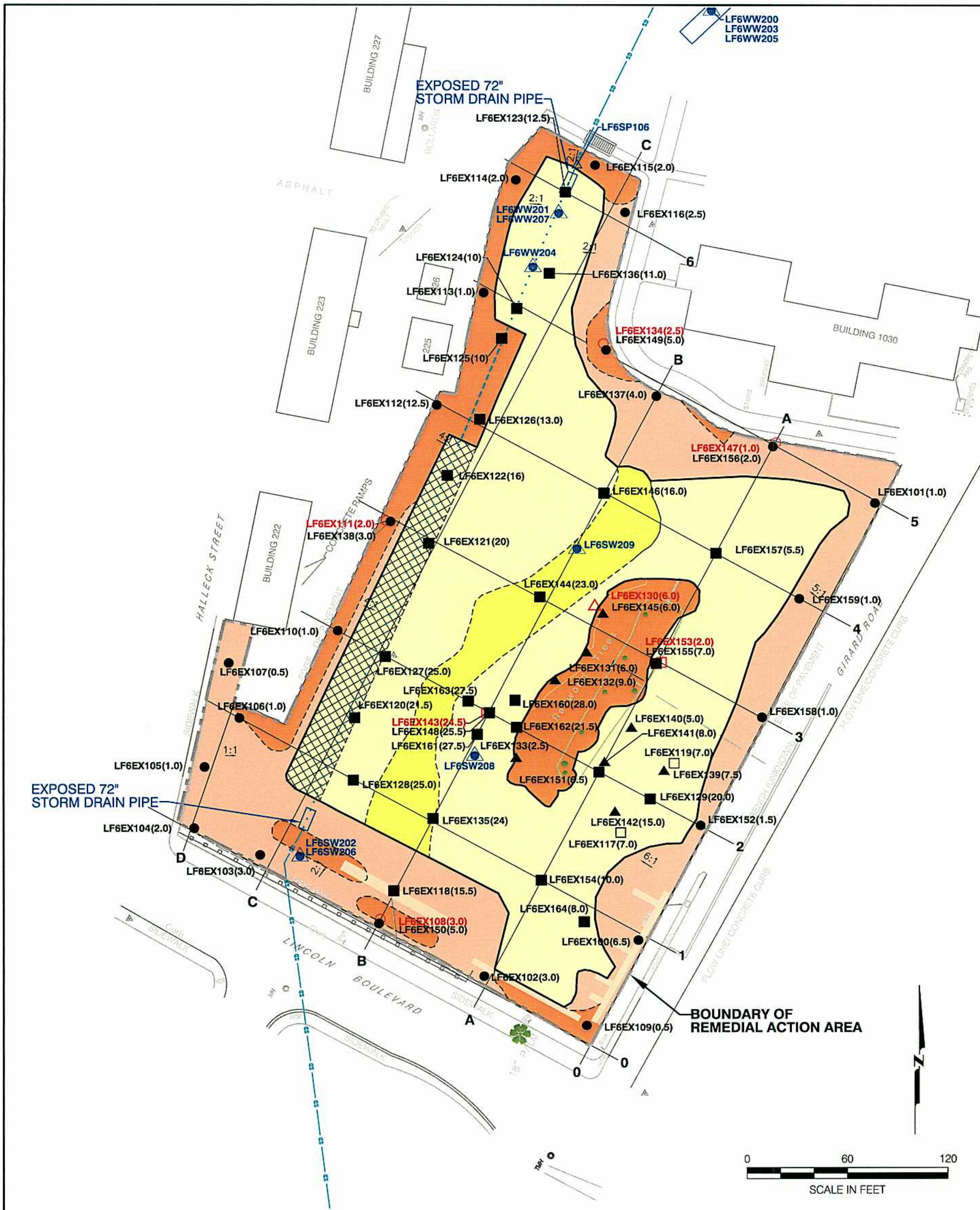
55213031.DWG 96.0
20060705.1535

MACTEC

Boundaries Between Native and Fill Materials
Post-Excavation and Pre-Restoration
Construction Completion Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE **4**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	MAJ	



EXPLANATION

BOUNDARY OF REMEDIAL ACTION AREA

A — 75 ft. SAMPLE GRID

SD 72 in. STORM DRAIN - where dashed, has been abandoned in place; where dotted, has been removed

LF6EX102(3.0) ● ○ PERIMETER SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed

LF6EX117(7.0) ▲ △ SIDEWALL SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed

LF6EX133(2.5) ■ □ BOTTOM SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed

LF6SW208 WATER SAMPLE LOCATION

LF6SP106 △ SEDIMENT SAMPLE FROM STORM DRAIN

COLMA FORMATION SAND

COLMA FORMATION CLAY

FILL - soil with no observed debris

FILL - with debris (brick, concrete, wood, etc.)

STRUCTURES - remains of concrete, road base, or debris left in place

PLACED FILL - placed prior to restoration activities in August 2005

DRAFT

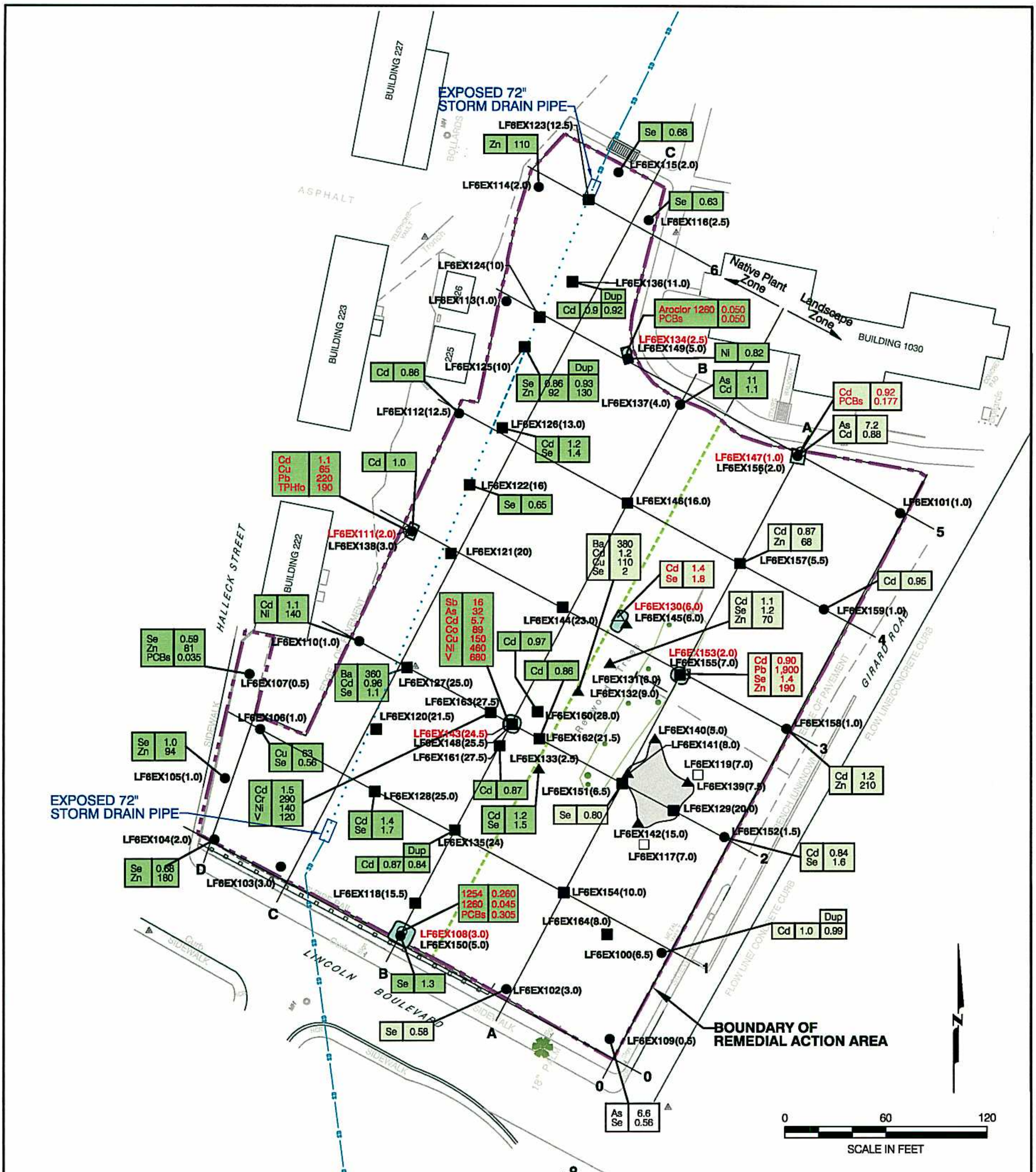
55213030.DWG 96.0
20060801.1017

MACTEC

Approximate Distribution of Material Types and Structures
Post-Excavation and Pre-Restoration
Completion and Certification Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE **5**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	Mey	



DRAFT

EXPLANATION

- BOUNDARY OF REMEDIAL ACTION AREA
- A — 75 ft. SAMPLE GRID
- 72 in. STORM DRAIN - where dashed, has been abandoned in place; where dotted, has been removed
- LANDSCAPE ZONE/NATIVE PLANT ZONE BOUNDARY
- LF6EX102(3.0) ● ○ PERIMETER SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed (results not shown)
- LF6EX117(7.0) ▲ △ SIDEWALL SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed
- LF6EX133(2.5) ■ □ BOTTOM SAMPLE - open symbol and station identification shown in red typeface indicates soil has been removed
- LIMITS OF FUEL LINE EXCAVATION AS PER FUEL CONTINGENCY ACTION PLAN
- LIMITS OF OVER-EXCAVATION AREAS

COMPOUND
Dup — DUPLICATE SAMPLE
Cd | 0.9 | 0.92 — CONCENTRATION IN mg/kg

Posted data indicates cleanup level exceedance (RED typeface indicates soil has been removed).

Compound	Acronym	Residential Cleanup Goal in mg/kg	Native Plant Zone Cleanup Goal in mg/kg	Landscape Zone Cleanup Goal in mg/kg
Antimony	Sb	29	5.0	5.0
Arsenic	As	--	6.2	6.2
Barium	Ba	5,000	320	500
Cadmium	Cd	1.7	0.80	0.80
Chromium	Cr	1,200	140	140
Cobalt	Co	4,000	21	48
Copper	Cu	--	49	120
Lead	Pb	400	160	300
Nickel	Ni	1,400	110	110
Selenium	Se	360	0.50	1.1
Vanadium	V	650	90	90
Zinc	Zi	22,000	60	60
Aroclor 1254	1254	0.16	0.033	0.16
Aroclor 1260	1260	0.16	0.033	0.16
PCBs	PCBs	0.16	0.033	0.16
TPHfo	TPHfo	--	144	980

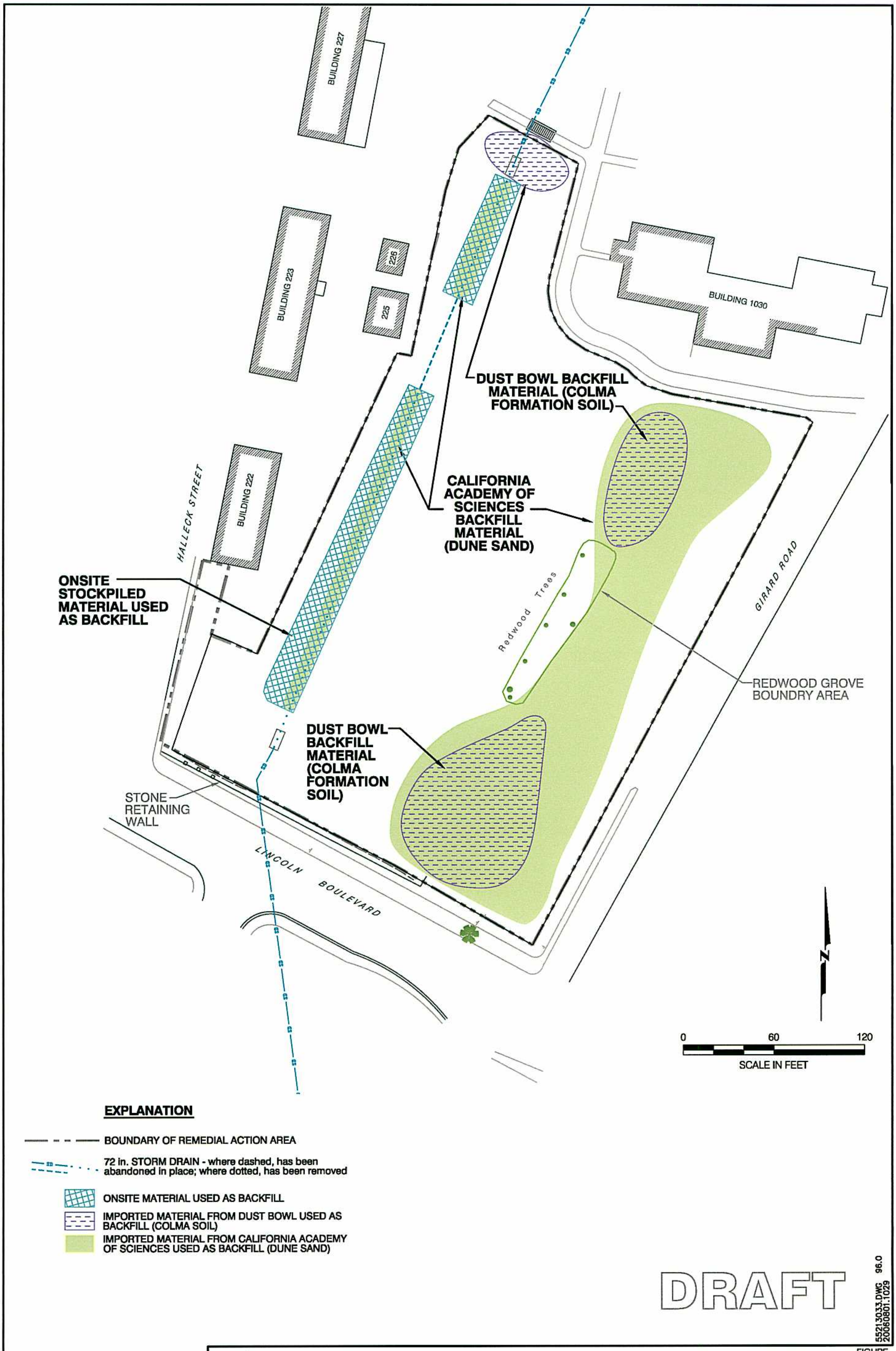
55213032.DWG 0.0
20060726.1504

MACTEC

Final Confirmation Soil Sample Locations
Cleanup Level Exceedances
Construction Completion Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE **6**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	maj	



MACTEC

Imported Backfill - Locations of Placement
Construction Completion Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE **7**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	3/30/06	MGJ	

EXPLANATION

LF6PZ105 — NEW PIEZOMETERS

LF6GW104 — NEW MONITORING WELLS

— POST AND CABLE FENCE

— BOUNDARY OF REMEDIAL FS6A ACTION AREA

— TENNESSEE HOLLOW WATER COURSE

— 72 in. STORM DRAIN

LANDSCAPE ZONE

NATIVE PLANT ZONE

REDWOOD ZONE (within Landscape Zone)

NOTE: TOPOGRAPHIC CONTOURS WITH 2-FOOT INTERVAL FROM FINAL (AS-BUILT).

SOURCE: TOPOGRAPHIC CONTOURS FROM FIELD SURVEY BY CHAUDHARY & ASSOCIATES, INC., JAN. 23 & 25, 2006, IN NAVD 88.

55213027.DWG 0.0
20060726.1418

MACTEC

Final Restoration Map
Construction Completion Report, Fill Site 6A
Presidio of San Francisco, California

FIGURE
8

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00312	GAL	3/30/06	MOJ	

EXPLANATION

BOUNDARY OF REMEDIAL ACTION AREA

TENNESSEE HOLLOW WATER COURSE

72 INCH STORM DRAIN

NATIVE PLANT ZONE (NO LAND USE RESTRICTIONS)

REDWOOD ZONE (WITHIN ECOLOGICAL LAND USE CONTROL ZONE)

ECOLOGICAL LAND USE CONTROL ZONE

STORM DRAIN LAND USE NOTIFICATION ZONE

BUILDING FOUNDATION LAND USE CONTROL ZONE

CONCRETE FOUNDATION LEFT IN PLACE

PERIMETER FILL LAND USE NOTIFICATION ZONE

DRAFT

NOTES:

1.) LUC Zones are based on planned restoration that has been modified from that presented in the Fill Site 6A Restoration Plan (Clearwater Hydrology and MACTEC, 2005).

2.) Coordinates are in NAD 27; elevations are in NAVD 88.

55213028.DWG 96.0
20060516.0837

MACTEC

Proposed Land Use Restriction Areas
Construction Completion Report, Fill Site 6A
Presidio of San Francisco, California

FIGURE **9**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00312	GAL	3/30/06	Moj	

APPENDIX A

PHOTOGRAPHS

May 23, 2005. Fill Site 6A. Clearing and grubbing.

May 26, 2005. Excavation of first lift of soil.

June 15, 2005. First encountered groundwater in excavation.

June 22, 2005. 72 inch storm drain is exposed.

July 5, 2005. 72 in. storm drain is removed. Groundwater standing in excavation.

July 15, 2005. Compaction of fill within storm drain excavation.

August 13, 2005. West side of site is completely excavated.

September 7, 2005. Excavation for restoration of stream channel.

Jan. 4, 2005. Utility trench during utility replacement

Jan. 4, 2005. Utility trench during utility replacement

Jan 6, 2005. New utility trench examination

Feb. 17, 2005 Old utility trench prior to removal

Feb. 24, 2005. Utility trench installation

May 23, 2005. Mobilization

May 23, 2005. Clearing and grubbing

May 24, 2005. Confirmation of utilities location

May 24, 2005. Loading trucks for offsite disposal

May 25, 2005. Digging at beginning of project

May 25, 2005. Tarping loads prior to offsite disposal

May 26, 2005. Traffic control

May 26, 2005. Tree removal

May 27, 2005. Quarrying material

May 27, 2005. Loading Trucks for offsite disposal

May 31, 2005. Excavation North

May 31, 2005. Waiting trucks

June 1, 2005. Dust suppression


June 22, 2005. Storm drain uncovered


June 22, 2005. Super saturated soil


June 22, 2005. Storm drain in place with groundwater


June 22, 2005. Final remediation grade


June 24, 2005. Groundwater in excavation

July 1, 2005. 72" SD after removal

July 1, 2005. After 72" SD removal

July 1, 2005. Rerouting storm drain water

July 5, 2005. Broken Coffer Dam

July 6, 2005. FDS line staining

July 6, 2005. TPH stained colma

July 7, 2005. Rebuilt cofferdam

July 12, 2005. Mat installation

July 13, 2005. Import dune sand

July 13, 2005. Foundation left in place

July 13, 2005. 72" SD with dune sand backfill

July 13, 2005. Dewatering channels


July 14, 2005. Compaction Testing in storm drain channel.


July 15, 2005. Dewatering sump and release of impounded groundwater


July 15, 2005. Centrifugal pump dewatering of bermed area


July 15, 2005. Dewatering sump in action


July 17, 2005. Dewatering abandoned utilities


July 18, 2005. Dewatering sump

Aug. 3, 2005. Loading concrete for recycle

Aug. 8, 2005. Historic wall

Aug. 8, 2005. Class 1 stockpile at far southeast side of site

Aug. 8, 2005. Class 1 stockpile

August 8, 2005. Loading Class I

Aug. 8, 2005 De-mobilization of CAT 235

Aug. 12, 2005. Abandoned Fire Hydrant

Aug. 13, 2005. Redwood roots

Aug. 15, 2005. Excavation of soil with debris

Aug. 20, 2005. Concrete for recycling

Aug 22, 2005. Dewatering channels for restoration work

Aug 23, 2005. Grouting SD section that remained in place

Sept. 7, 2005. Stream channel at final grade

Sept. 17, 2005. Restoration contractor cutting channel

Sept. 23, 2005. Headwall construction

Sept. 23, 2005. Placing rootwads and boulders at headwall

Oct. 10, 2005. Constructing willow walls

Oct 11, 2005. Finished head wall

Nov. 16, 2005. Well installation

Nov. 16, 2005. Replanting

APPENDIX B

LABORATORY REPORTS – CONFIRMATION SOIL, WASTEWATER, AND BACKFILL SAMPLES (DISK)

APPENDIX C

FDS PIPELINE REMOVAL REPORT

APPENDIX C

TABLE OF CONTENTS

TABLE

FIGURE

ATTACHMENTS

C.0 APPENDIX C
FDS PIPELINE REMOVAL REPORT

The following is a summary of activities performed to remove an FDS pipeline and associated impacted soils encountered during the remedial action activities at Fill Site 6A, Presidio of San Francisco, California. This report has been prepared and the pipeline and associated impacted soils removed on behalf of the Presidio Trust (Trust).

C1.0 Background

Between May 24, 2005 and September 21, 2005, the Trust performed removal of contaminated fill soil and building debris as part of the Presidio environmental restoration and cleanup program at the FS 6A site. Soil excavation and waste profiling and disposal were performed by Pacific States Environmental Contractors, Inc (PSEC) under Contract to the Trust. Field activities were observed, and confirmation soil and wastewater samples were collected by a MACTEC geologist.

The section of FDS pipeline and fuel oil impacted soil were discovered within the FS6A excavation during demolition and removal of the foundations associated with the former nurse's quarters.

C2.0 Summary of Field Activities

The following summarizes field activities associated with removal of the FDS pipeline.

C2.1 Discovery of Pipeline

On July 6, 2005, during soil excavation activities, an approximately 20-foot length of FDS piping was encountered in the eastern part of the site during demolition and removal of the foundations associated with the former nurse's quarters. Stained soil was noted below the pipeline. Based on an on-site meeting with representatives of DTSC on July 6, it was agreed that any fuel-contaminated soils that are associated with FDS lines would be sampled in accordance with the Petroleum Contingency Plan (*EKI, 2004*).

C2.2 Pipeline and Soil Removal

The pipeline was removed by PESC and approximately 55 cubic yards of stained soil was excavated. Following removal of the visibly impacted soil, one sample was collected at the deepest part of the excavation (approximately 10 to 12 feet below the basement floor of former building), and four sidewall samples were collected, one per 25 feet of sidewall. Samples were analyzed for total petroleum hydrocarbons as diesel and fuel oil (TPH-d/fo) and polynuclear aromatic hydrocarbons (PAHs).

The RWQCB was subsequently notified by Trust of the discovery of the FDS line via a telephone call and subsequent e-mail dated July 8, 2005.

C3.0 Summary of Analytical Results

Table C1 includes a summary of compounds detected in the confirmation samples (LF6EX139[7.5], LF6EX140[5.0], LF6EX141[8.0], LF6EX142[15.0], and Dup 072105), collected from the excavation. The laboratory analytical report is included as Attachment B.

Analytical results for the soil confirmation samples indicate that TPH-d, TPH-fo, and PAHs were not detected.

C4.0 Disposition of Soil

Soil surrounding the pipeline was removed and staged in stockpiles with other similarly contaminated soil removed during the FS 6A excavation activities. Soil stockpiles associated with soil removed from the pipeline excavation were transported offsite to Ox Mountain Class III Landfill in Half Moon Bay, California.

C5.0 Excavation Backfilling

The former FDS piping area was backfilled using imported fill (dune sand from the California Academy of Sciences) placed and compacted in lifts generally consistent with the Construction Specifications.

Field moisture/density tests performed by MACTEC during backfill operations at the site are included in Appendix E of the Construction Completion Report.

C6.0 References

Erler & Kalinowski, Inc. (EKI), 2004. *Petroleum Contingency Plan, Presidio of San Francisco, California*. August.

TABLE

Table C1. Compounds Detected in Soil Confirmation Samples
FDS Pipeline Removal
Construction Completion Report Fill Site 6A Remediation
Presidio of San Francisco, California

Station Name	Sample Number (depth)	Sample Date	Benzo(a)pyrene (µg/kg) Value	Qual	Benzo(b)fluoranthene (µg/kg) Value	Qual	Benzo(k)fluoranthene (µg/kg) Value	Qual	Dibenzo(a,h)anthracene (µg/kg) Value	Qual	Indeno(1,2,3-cd)pyrene (µg/kg) Value	Qual	Acenaphthene (µg/kg) Value	Qual	Acenaphthylene (µg/kg) Value	Qual	Anthracene (µg/kg) Value	Qual	Benzo(a)anthracene (µg/kg) Value	Qual	Benzo(g,h,i)perylene (µg/kg) Value	Qual
LF6EX129	LF6EX129(20)	07/07/05	ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)	
LF6EX139	LF6EX139(7.5)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)	
LF6EX140	LF6EX140(5.0)	07/20/05	ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)	
LF6EX141	LF6EX141(8.0)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)	
LF6EX142	DUP072105	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)	
LF6EX142	LF6EX142(15.0)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)	

Station Name	Sample Number (depth)	Sample Date	Chrysene (µg/kg) Value	Qual	Fluoranthene (µg/kg) Value	Qual	Fluorene (µg/kg) Value	Qual	Naphthalene (µg/kg) Value	Qual	Phenanthrene (µg/kg) Value	Qual	Pyrene (µg/kg) Value	Qual	TPH Fuel Oil (C24-C36) (mg/kg) Value	Qual	TPH, Diesel (C10-C24) (mg/kg) Value	Qual
LF6EX129	LF6EX129(20)	07/07/05	ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		ND(6.0)		33		8.2	HY
LF6EX139	LF6EX139(7.5)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.6)		ND(1.1)	
LF6EX140	LF6EX140(5.0)	07/20/05	ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.6)		ND(5.5)		ND(1.1)	
LF6EX141	LF6EX141(8.0)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(1.1)	
LF6EX142	DUP072105	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.6)		ND(1.1)	
LF6EX142	LF6EX142(15.0)	07/20/05	ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.7)		ND(5.8)		ND(1.2)	

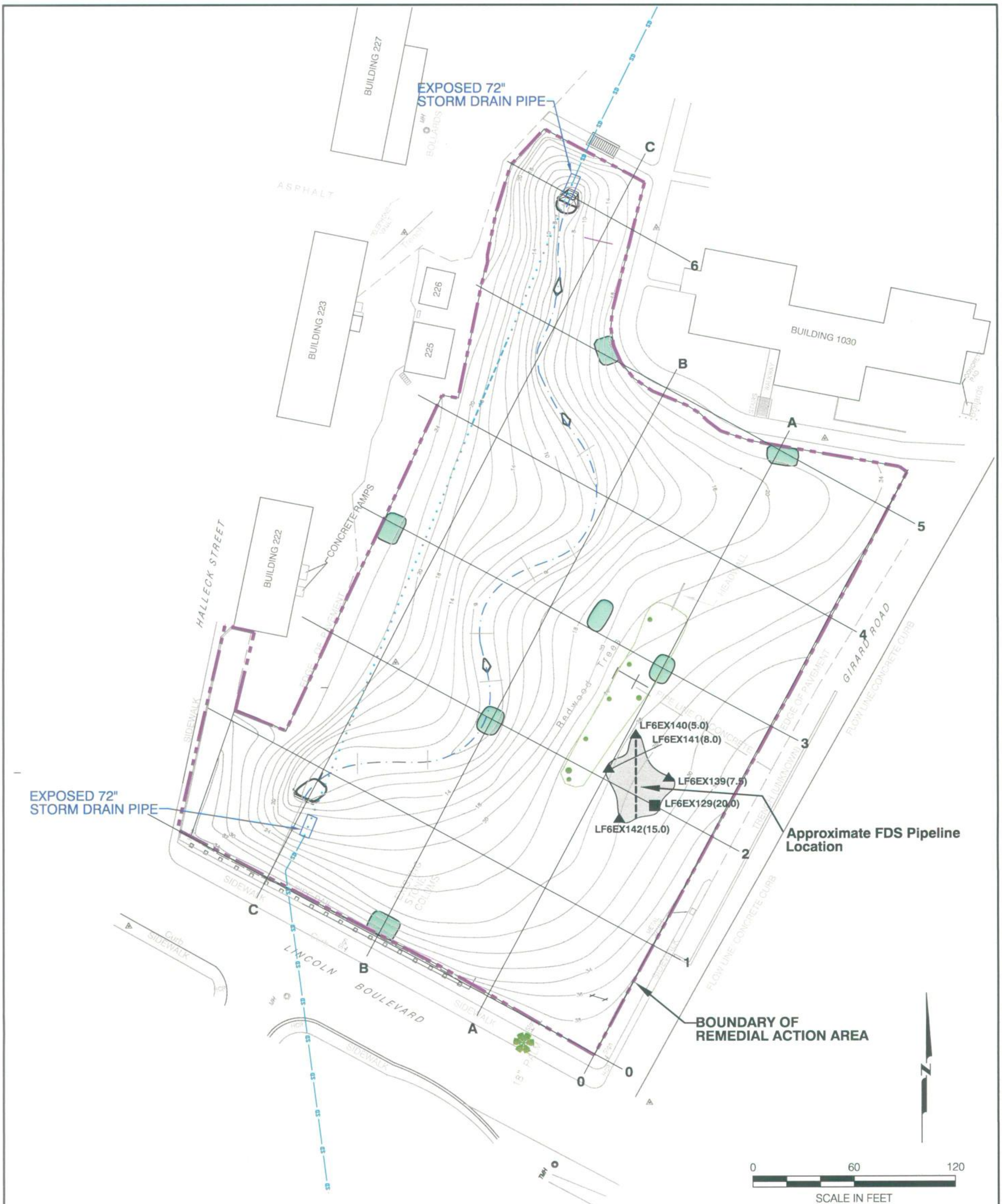
Qualifiers:
- H Heavier hydrocarbons contributed to the quantification
- Y Sample exhibits chromatographic pattern which does not resemble standard.

Results exceeding cleanup levels are outlined with a box.
Qualifiers are presented in Table 10
ND = Not Detected at the specific reporting level in parentheses.
NT = Not Tested

Checked GAL

Approved May

FIGURE



EXPLANATION

BOUNDARY OF REMEDIAL ACTION AREA

A — 75 ft. SAMPLE GRID

72 in. STORM DRAIN - where dashed, has been abandoned in place; where dotted, has been removed

LF6EX39(7.5) ▲ SIDEWALL SAMPLE - station identification shown in gray typeface indicates soil has been removed

LF6EX129(20.0) ■ BOTTOM SAMPLE - station identification shown in gray typeface indicates soil has been removed

LIMITS OF FUEL LINE EXCAVATION AS PER FUEL CONTINGENCY ACTION PLAN

COMPOUND

DUPLICATE SAMPLE

CONCENTRATION IN mg/kg

PRELIMINARY NON-VALIDATED DATA ARE PRESENTED ON PLATE.

DRAFT

55213017.DWG 96.0
20051004.1622

MACTEC

FDS Pipeline and Soil Sample Locations
Completion and Certificaatioin Report, Fill Site 6A
Presidio of San Francisco
San Francisco, California

FIGURE
C1

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
CN	55213 00311	GAL	1/06	Mg	

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY FORMS

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Number 180485

Mactec, Inc.
5341 Old Redwood Hwy
Petaluma, CA 94954

Project#: 55213 00311
Location: Presidio Site 6A

Sample ID	Lab ID
LF6EX129(20.0)	180485-001
LF6EX130(6.0)	180485-002
LF6EX131(6.0)	180485-003
LF6EX132(9.0)	180485-004
LF6EX133(2.5)	180485-005
LF6SP104	180485-006
LF6SP105	180485-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Signature: Carol Wertham for JG   Date: 8/19/05
Operations Manager

Signature: ____________________   Date: 7/22/05
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number: **180485**
Client: **Mactec, Inc.**
Project: **55213 00311**
Location: **Presidio Site 6A**
Request Date: 07/08/05
Samples Received: 07/08/05

This hardcopy data package contains sample and QC results for seven soil samples, requested for the above referenced project on 07/08/05. The samples were received cold and intact.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):
No analytical problems were encountered.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
Low responses were observed for bromomethane and chloromethane in the ICV analyzed 07/05/05 20:22; these analytes were not detected at or above the RL in the associated samples. Low response was observed for chloromethane in the CCV analyzed 07/08/05 12:00; this analyte met minimum response criteria. Low recovery was observed for trichloroethene in the MSD for batch 103689; the parent sample was not a project sample, and the LCS was within limits. Response exceeding the instrument's linear range was observed for trichloroethene in the MS/MSD for batch 103689; affected data was qualified with "b". No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
Matrix spikes were not reported for batch 103718 because the parent sample required a dilution that would have diluted out the spikes. The sample spiked was not from this site. Low response was observed for benzo(a)anthracene in the CCV analyzed 07/11/05 10:22; this analyte met minimum response criteria. No other analytical problems were encountered.

Pesticides (EPA 8081A):
High surrogate recoveries were observed for decachlorobiphenyl and TCMX in the MSD for batch 103695; the parent sample was not a project sample. The spike recoveries in the MSD were within criteria. LF6SP105 (lab # 180485-007) was diluted due to the dark, viscous nature of the sample extract. No other analytical problems were encountered.

PCBs (EPA 8082):
No analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):
Low recoveries were observed for lead in the MS/MSD of LF6EX125(10.0) (lab # 180456-001), due to matrix interference; the BS/BSD were within limits, the

CASE NARRATIVE

Laboratory number:	**180485**
Client:	**Mactec, Inc.**
Project:	**55213 00311**
Location:	**Presidio Site 6A**
Request Date:	**07/08/05**
Samples Received:	**07/08/05**

Metals (EPA 6010B and EPA 7471A):
associated RPD was within limits, and the post digest spike was within limits. Response exceeding the instrument's linear range was observed for zinc in the MS of LF6EX125(10.0) (lab # 180456-001). No other analytical problems were encountered.

Reactive Cyanide (SW-846 CH.7):
No analytical problems were encountered.

Reactive Sulfide (SW-846 CH.7):
No analytical problems were encountered.

pH (EPA 9045C):
No analytical problems were encountered.

Ignitability (SW-846 CH.7):
No analytical problems were encountered.

Moisture (ASTM D2216/CLP):
No analytical problems were encountered.

Chain of Custody

MACTEC

5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954
(707) 793-3800

CHAIN OF CUSTODY FORM

180485

Seq. No.: № 1455

Samplers: A# HENKE

Lab: CURTIS TOMPKINS

Job Number: 55213 00311

Name/Location: PRESIDIO SF - F96A

Project Manager: M A JACOBVITZ

Recorder: [signature] (Signature Required)

Matrix: Water	Soil	Air	Unpres.	H2SO4	HNO3	HCL		Sample Number: YR	SEQ	Date: YR	MO	DAY	TIME	Station Description	Depth	PCBs (8082)	T22 METALS (6010/6020)	Hg (7471)	VOC (8260B)	SVOC (8270C)	~~PEST (8081)~~	~~Cl HERB (8150)~~	TPH-d, -fo (8015-M)
	✓		4				-1	LF6EX	129 (20.0)	05	07	07	1410			+	+	+	✓	✓	✓	✓	✓
	✓		1				-2	LF6EX	130 (6.0)	05	07	07	1425			✓	✓	✓					
	✓		1				-3	LF6EX	131 (6.0)	05	07	07	1440			✓	✓	✓					
	✓		1				-4	LF6EX	132 (9.0)	05	07	07	1450			✓	✓	✓					
	✓		1				-5	LF6EX	133 (2.5)	05	07	07	1500			✓	✓	✓					
	✓		1				-6	LF6SP	104	05	07	08	0830			✓	✓	✓					
	✓		1				-7	LF6SP	105	05	07	08	1000			✓	✓	✓					

ADDITIONAL INFORMATION

Sample Number: YR	SEQ	Turnaround Time/ Remarks
		24 HR TAT
		RESULTS TO G.A. LIEBERMAN
		707 793 3858

CHAIN OF CUSTODY RECORD

	Signature	Print Name	Company	Date/Time
Relinquished By	[signature]	A# HENKE	MACTEC	7/8/05 : 1055
Received By	[signature]	Tony Rojas	C&T	7/8/05 : 1055
Relinquished By				
Received By				
Relinquished By				
Received By				

Method of Shipment: CT COURIER

6

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 180485 Date Received: 7/8/05 Number of Coolers: 1
Client: MACTEC Project: Presidio-SF FG6A

A. Preliminary Examination Phase
Date Opened: 7/8/05 By (print): Peter P. (sign)

1. Did cooler come with a shipping slip (airbill, etc.)? .... YES NO
   If YES, enter carrier name and airbill number: ______
2. Were custody seals on outside of cooler? .... YES NO
   How many and where? ______ Seal date: ______ Seal name: ______
3. Were custody seals unbroken and intact at the date and time of arrival? .... YES NO N/A
4. Were custody papers dry and intact when received? .... YES NO
5. Were custody papers filled out properly (ink, signed, etc.)? .... YES NO
6. Did you sign the custody papers in the appropriate place? .... YES NO
7. Was project identifiable from custody papers? .... YES NO
   If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? Samples should be 2-6 degrees C. .... YES NO
   Type of ice: Wet Temperature: on ice

B. Login Phase
Date Logged In: 7/8/05 By (print): Peter P. (sign)

1. Describe type of packing in cooler: Zip Loc bags
2. Did all bottles arrive unbroken? .... YES NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? .... YES NO
4. Did bottle labels agree with custody papers? .... YES NO
5. Were appropriate containers used for the tests indicated? .... YES NO
6. Were correct preservatives added to samples? .... YES NO N/A
7. Was sufficient amount of sample sent for tests indicated? .... YES NO
8. Were bubbles absent in VOA samples? If NO, list sample Ids below .... YES NO N/A
9. Was the client contacted concerning this sample delivery? .... YES NO
   If YES, give details below.
   Who was called? ______ By whom? ______ Date: ______

Additional Comments:

CURTIS & TOMPKINS, LTD. BERKELEY LOGIN CHANGE FORM

Reason for change: X Client Request: By: G Lieberman Date/Time: 7/8 330 Initials: LJB
Login Review Data Review Level:
Client/Acct: Mactec

Current Lab ID	Previous Lab ID	Client ID	Matrix	Add/Cancel/ Change	Analysis	Holddate	Duedate
180485-001		LF6EX129(20.0)	Soil	chg	8270 → 8270SIM		7/11
180485-007		LF6SP105	↓	ADD	TVH		
↓		↓	↓	↓	TEHM + FO		↓

Subject: FW: Sample Change
From: "Lieberman, Gary" <GALieberman@mactec.com>
Date: Fri, 8 Jul 2005 11:55:30 -0700
To: <lisa@ctberk.com>

Lisa, I forwarded this to Pat but understand she is out - can you confirm the change indicated below is completed - thanks

Gary

Pat you will be (or just received) COC 1455 dated 7/7 for field Site 6A.
On the COC is sample LF6EX129(20.0) currently slated to be run for the
full suite of anlaysis. By virtue of this e-mail, please delete all
anlaysis on this sample except for TPHd/Fo (with silica gel), VOCs, and
SVOCs using the Sim method. Please call or e-mail me should you have
any questions. Thanks Gary

-----Original Message-----
From: pat@ctberk.com [mailto:pat@ctberk.com]
Sent: Friday, July 08, 2005 11:47 AM
To: Lieberman, Gary
Subject: Re: Sample Change

8

Subject: RE: FW: Sample Change
From: "Lieberman, Gary" <GALieberman@mactec.com>
Date: Fri, 8 Jul 2005 15:02:00 -0700
To: "Lisa Brooker" <lisa@ctberk.com>

Sorry, my mistake on SVOCs - it is PAHs using SIM method - also, need to
make changes to another sample on that COC

Sample# LF6SP105 needs to be run for TPHg, TPHd/Fo, Title 22 metals,
PCBs, ignitability, corrosivity, and reactivity. Please give me a call
or e-mail if you have any questions.

Gary

-----Original Message-----
From: Lisa Brooker [mailto:lisa@ctberk.com]
Sent: Friday, July 08, 2005 12:10 PM
To: Lieberman, Gary
Subject: Re: FW: Sample Change

Hi Gary,
I just left you a voice mail message and no problem canceling these

analyses. I do have one question, when you say SVOC by SIM would you
like the full SVOC list or the shortened PAH list? We would only be able

to do the shortened list by SIM the full list would be done by 8270c.
Please let me know asap so the extraction lab can jump on the rushes.
Thanks! Lisa

Lieberman, Gary wrote:

> Lisa, I forwarded this to Pat but understand she is out - can you
>
> confirm the change indicated below is completed - thanks
>
> Gary
>
> Pat you will be (or just received) COC 1455 dated 7/7 for field Site

6A. On the COC is sample LF6EX129(20.0) currently slated to be run for
the full suite of anlaysis. By virtue of this e-mail, please delete
all anlaysis on this sample except for TPHd/Fo (with silica gel), VOCs,

and SVOCs using the Sim method. Please call or e-mail me should you
have any questions. Thanks Gary

-----Original Message-----
From: pat@ctberk.com [mailto:pat@ctberk.com]
Sent: Friday, July 08, 2005 11:47 AM
To: Lieberman, Gary
Subject: Re: Sample Change

Subject: RE: Presidio San Francisco - C&T Reports (180216)metals +Zn
From: "Seelbach, Ryan" <RSeelbach@presidiotrust.gov>
Date: Fri, 8 Jul 2005 16:43:11 -0700
To: "LB forPatricia Flynn" <lisa@ctberk.com>, <mheassler@mactec.com>
CC: <galieberman@mactec.com>

Thanks. We need to add pesticides by EPA 8081 to sample number
LF6SP105
on COC # 1455.

180485

-----Original Message-----
From: LB forPatricia Flynn [mailto:lisa@ctberk.com]
Sent: Friday, July 08, 2005 3:24 PM
To: mheassler@mactec.com
Cc: Seelbach, Ryan; galieberman@mactec.com
Subject: Presidio San Francisco - C&T Reports (180216)metals +Zn

Attached is a PDF version of the hardcopy reports for C&T job
180216.

Email compiled and sent 07/08/05 04:24 PM.

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

ab #:	180485	Location:	Presidio Site 6A
lient:	Mactec, Inc.	Prep:	SHAKER TABLE
roject#:	55213 00311	Analysis:	EPA 8015B
atrix:	Soil	Received:	07/08/05
nits:	mg/Kg	Prepared:	07/08/05
iln Fac:	1.000	Analyzed:	07/08/05
atch#:	103699		

eld ID:	LF6EX129(20.0)	Moisture:	18%
pe:	SAMPLE	Sampled:	07/07/05
ID:	180485-001	Cleanup Method:	EPA 3630C
sis:	dry		

Analyte	Result	RL
iesel C10-C24	8.2 H Y	1.2
otor Oil C24-C36	33	6.1

Surrogate	%REC	Limits
exacosane	131	51-136

eld ID:	LF6SP105	Moisture:	3%
pe:	SAMPLE	Sampled:	07/08/05
ID:	180485-007	Cleanup Method:	EPA 3630C
sis:	dry		

Analyte	Result	RL
esel C10-C24	17 H Y	1.0
otor Oil C24-C36	110	5.1

Surrogate	%REC	Limits
exacosane	106	51-136

pe:	BLANK	Basis:	as received
ID:	QC300375	Cleanup Method:	EPA 3630C

Analyte	Result	RL
esel C10-C24	ND	1.0
otor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
exacosane	103	51-136

: Heavier hydrocarbons contributed to the quantitation
: Sample exhibits chromatographic pattern which does not resemble standard
: Not Detected
: Reporting Limit

TPH-EXTRACTABLES DATA

SOIL

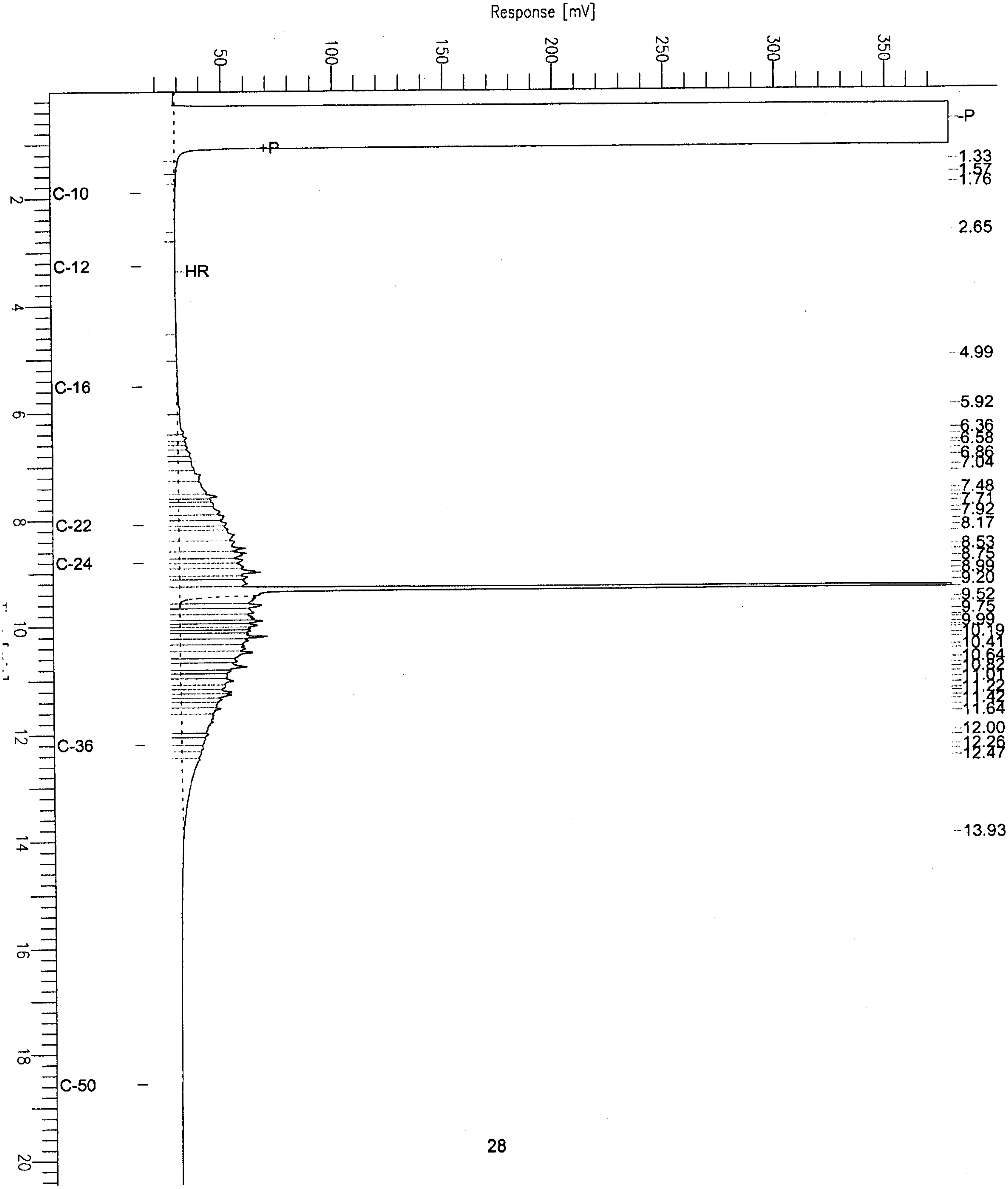
Chromatogram

mple Name : 180485-001sg,103699
leName : G:\GC11\CHA\189A015.RAW
thod : ATEH189S.MTH
art Time : 0.01 min
ale Factor: 0.0

End Time : 20.45 min
Plot Offset: 14 mV

Sample #: 103699
Date : 7/10/05 09:26 AM
Time of Injection: 7/8/05 08:05 PM
Low Point : 13.64 mV
Plot Scale: 365.7 mV

High Point : 379.32 mV



Curtis & Tompkins, Ltd.

Volatile Organics
Soil

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Purgeable Organics by GC/MS

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 5035
Project#:	55213 00311	Analysis:	EPA 8260B
Field ID:	LF6EX129(20.0)	Diln Fac:	0.8333
Lab ID:	180485-001	Batch#:	103689
Matrix:	Soil	Sampled:	07/07/05
Units:	ug/Kg	Received:	07/08/05
Basis:	dry	Analyzed:	07/08/05

Moisture: 18%

Analyte	Result	RL	MDL
Freon 12	ND	10	
Chloromethane	ND	10	
Vinyl Chloride	ND	10	
Bromomethane	ND	10	
Chloroethane	ND	10	
Trichlorofluoromethane	ND	5.1	
Acetone	ND	20	
Freon 113	ND	5.1	
1,1-Dichloroethene	ND	5.1	
Methylene Chloride	ND	20	
Carbon Disulfide	ND	5.1	
MTBE	ND	5.1	
trans-1,2-Dichloroethene	ND	5.1	
Vinyl Acetate	ND	51	
1,1-Dichloroethane	ND	5.1	
2-Butanone	ND	10	
cis-1,2-Dichloroethene	ND	5.1	
2,2-Dichloropropane	ND	5.1	
Chloroform	ND	5.1	
Bromochloromethane	ND	5.1	
1,1,1-Trichloroethane	ND	5.1	
1,1-Dichloropropene	ND	5.1	
Carbon Tetrachloride	ND	5.1	
1,2-Dichloroethane	ND	5.1	
Benzene	ND	5.1	1.2
Trichloroethene	ND	5.1	
1,2-Dichloropropane	ND	5.1	
Bromodichloromethane	ND	5.1	
Dibromomethane	ND	5.1	
4-Methyl-2-Pentanone	ND	10	
cis-1,3-Dichloropropene	ND	5.1	
Toluene	ND	5.1	
trans-1,3-Dichloropropene	ND	5.1	
1,1,2-Trichloroethane	ND	5.1	
2-Hexanone	ND	10	
1,3-Dichloropropane	ND	5.1	
Tetrachloroethene	ND	5.1	
Dibromochloromethane	ND	5.1	
1,2-Dibromoethane	ND	5.1	
Chlorobenzene	ND	5.1	
1,1,1,2-Tetrachloroethane	ND	5.1	
Ethylbenzene	ND	5.1	
m,p-Xylenes	ND	5.1	
o-Xylene	ND	5.1	
Styrene	ND	5.1	
Bromoform	ND	5.1	
Isopropylbenzene	ND	5.1	
1,1,2,2-Tetrachloroethane	ND	5.1	
1,2,3-Trichloropropane	ND	5.1	
Propylbenzene	ND	5.1	
Bromobenzene	ND	5.1	
1,3,5-Trimethylbenzene	ND	5.1	

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Purgeable Organics by GC/MS

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 5035
Project#:	55213 00311	Analysis:	EPA 8260B
Field ID:	LF6EX129(20.0)	Diln Fac:	0.8333
Lab ID:	180485-001	Batch#:	103689
Matrix:	Soil	Sampled:	07/07/05
Units:	ug/Kg	Received:	07/08/05
Basis:	dry	Analyzed:	07/08/05

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	5.1	
4-Chlorotoluene	ND	5.1	
tert-Butylbenzene	ND	5.1	
1,2,4-Trimethylbenzene	ND	5.1	
sec-Butylbenzene	ND	5.1	
para-Isopropyl Toluene	ND	5.1	
1,3-Dichlorobenzene	ND	5.1	
1,4-Dichlorobenzene	ND	5.1	
n-Butylbenzene	ND	5.1	
1,2-Dichlorobenzene	ND	5.1	
1,2-Dibromo-3-Chloropropane	ND	5.1	
1,2,4-Trichlorobenzene	ND	5.1	
Hexachlorobutadiene	ND	5.1	
Naphthalene	ND	5.1	
1,2,3-Trichlorobenzene	ND	5.1	

Surrogate	%REC	Limits
Dibromofluoromethane	99	78-120
1,2-Dichloroethane-d4	102	80-120
Toluene-d8	99	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 5035
Project#:	55213 00311	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC300325	Diln Fac:	1.000
Matrix:	Soil	Batch#:	103689
Units:	ug/Kg	Analyzed:	07/08/05

Analyte	Result	RL	MDL
Freon 12	ND	10	
Chloromethane	ND	10	
Vinyl Chloride	ND	10	
Bromomethane	ND	10	
Chloroethane	ND	10	
Trichlorofluoromethane	ND	5.0	
Acetone	ND	20	
Freon 113	ND	5.0	
1,1-Dichloroethene	ND	5.0	
Methylene Chloride	ND	20	
Carbon Disulfide	ND	5.0	
MTBE	ND	5.0	
trans-1,2-Dichloroethene	ND	5.0	
Vinyl Acetate	ND	50	
1,1-Dichloroethane	ND	5.0	
2-Butanone	ND	10	
cis-1,2-Dichloroethene	ND	5.0	
2,2-Dichloropropane	ND	5.0	
Chloroform	ND	5.0	
Bromochloromethane	ND	5.0	
1,1,1-Trichloroethane	ND	5.0	
1,1-Dichloropropene	ND	5.0	
Carbon Tetrachloride	ND	5.0	
1,2-Dichloroethane	ND	5.0	
Benzene	ND	5.0	1.2
Trichloroethene	ND	5.0	
1,2-Dichloropropane	ND	5.0	
Bromodichloromethane	ND	5.0	
Dibromomethane	ND	5.0	
4-Methyl-2-Pentanone	ND	10	
cis-1,3-Dichloropropene	ND	5.0	
Toluene	ND	5.0	
trans-1,3-Dichloropropene	ND	5.0	
1,1,2-Trichloroethane	ND	5.0	
2-Hexanone	ND	10	
1,3-Dichloropropane	ND	5.0	
Tetrachloroethene	ND	5.0	
Dibromochloromethane	ND	5.0	
1,2-Dibromoethane	ND	5.0	
Chlorobenzene	ND	5.0	
1,1,1,2-Tetrachloroethane	ND	5.0	
Ethylbenzene	ND	5.0	
m,p-Xylenes	ND	5.0	
o-Xylene	ND	5.0	
Styrene	ND	5.0	
Bromoform	ND	5.0	
Isopropylbenzene	ND	5.0	
1,1,2,2-Tetrachloroethane	ND	5.0	
1,2,3-Trichloropropane	ND	5.0	
Propylbenzene	ND	5.0	
Bromobenzene	ND	5.0	
1,3,5-Trimethylbenzene	ND	5.0	
2-Chlorotoluene	ND	5.0	
4-Chlorotoluene	ND	5.0	

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 5035
Project#:	55213 00311	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC300325	Diln Fac:	1.000
Matrix:	Soil	Batch#:	103689
Units:	ug/Kg	Analyzed:	07/08/05

Analyte	Result	RL	MDL
tert-Butylbenzene	ND	5.0	
1,2,4-Trimethylbenzene	ND	5.0	
sec-Butylbenzene	ND	5.0	
para-Isopropyl Toluene	ND	5.0	
1,3-Dichlorobenzene	ND	5.0	
1,4-Dichlorobenzene	ND	5.0	
n-Butylbenzene	ND	5.0	
1,2-Dichlorobenzene	ND	5.0	
1,2-Dibromo-3-Chloropropane	ND	5.0	
1,2,4-Trichlorobenzene	ND	5.0	
Hexachlorobutadiene	ND	5.0	
Naphthalene	ND	5.0	
1,2,3-Trichlorobenzene	ND	5.0	

Surrogate	%REC	Limits
Dibromofluoromethane	93	78-120
1,2-Dichloroethane-d4	97	80-120
Toluene-d8	98	80-120
Bromofluorobenzene	101	80-120

ND= Not Detected
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 5035
Project#:	55213 00311	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC300327	Diln Fac:	1.000
Matrix:	Soil	Batch#:	103689
Units:	ug/Kg	Analyzed:	07/08/05

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	50.00	58.94	118	77-124
Benzene	50.00	55.13	110	80-120
Trichloroethene	50.00	57.91	116	80-120
Toluene	50.00	55.41	111	80-120
Chlorobenzene	50.00	56.89	114	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	95	78-120
1,2-Dichloroethane-d4	92	80-120
Toluene-d8	100	80-120
Bromofluorobenzene	94	80-120

8270-SIM
Soil

Curtis & Tompkins, Ltd.

—

Semivolatile Organics by GC/MS SIM

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	LF6EX129(20.0)	Batch#:	103718
Lab ID:	180485-001	Sampled:	07/07/05
Matrix:	Soil	Received:	07/08/05
Units:	ug/Kg	Prepared:	07/10/05
Basis:	dry	Analyzed:	07/11/05
Diln Fac:	1.000		

oisture: 18%

Analyte	Result	RL
Naphthalene	ND	6.0
Acenaphthylene	ND	6.0
Acenaphthene	ND	6.0
Fluorene	ND	6.0
Phenanthrene	ND	6.0
Anthracene	ND	6.0
Fluoranthene	ND	6.0
Pyrene	ND	6.0
Benzo(a)anthracene	ND	6.0
Chrysene	ND	6.0
Benzo(b)fluoranthene	ND	6.0
Benzo(k)fluoranthene	ND	6.0
Benzo(a)pyrene	ND	6.0
Indeno(1,2,3-cd)pyrene	ND	6.0
Dibenz(a,h)anthracene	ND	6.0
Benzo(g,h,i)perylene	ND	6.0

Surrogate	%REC	Limits
Nitrobenzene-d5	78	37-140
2-Fluorobiphenyl	74	38-120
Terphenyl-d14	74	44-137

D= Not Detected
L= Reporting Limit

10.0

Curtis & Tompkins, Ltd.

MOISTURE DATA

Curtis & Tompkins, Ltd.

Moisture

Lab #:	180485	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	METHOD
Project#:	55213 00311	Analysis:	ASTM D2216/CLP
Analyte:	Moisture, Percent	Batch#:	103700
Matrix:	Soil	Received:	07/08/05
Units:	%	Analyzed:	07/08/05
Diln Fac:	1.000		

Field ID	Lab ID	Result	RL	Sampled
LF6EX129(20.0)	180485-001	18	1	07/07/05
LF6EX130(6.0)	180485-002	8	1	07/07/05
LF6EX131(6.0)	180485-003	13	1	07/07/05
LF6EX132(9.0)	180485-004	5	1	07/07/05
LF6EX133(2.5)	180485-005	6	1	07/07/05
LF6SP104	180485-006	15	1	07/08/05
LF6SP105	180485-007	3	1	07/08/05

:L= Reporting Limit

41.0

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Number 180742

Mactec, Inc.
5341 Old Redwood Hwy
Petaluma, CA 94954

Project#: 55213 00311
Location: Presidio Site 6A

Sample ID	Lab ID
LF6EX134(2.5)	180742-001
LF6EX135(24.0)	180742-002
DUP(072005)-1	180742-003
LF6EX136(11.0)	180742-004
DUP(072005)-2	180742-005
LF6EX137(4.0)	180742-006
LF6EX138(3.0)	180742-007
LF6EX139(7.5)	180742-008
LF6EX140(5.0)	180742-009
LF6EX141(8.0)	180742-010
LF6EX142(15.0)	180742-011
DUP(072105)	180742-012

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Signature: ______________ Date: 9/16/05
Operations Manager

Signature: ______________ Date: 9/15/05
Project Manager

NELAP # 01107CA

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**180742**
Client:	**Mactec, Inc.**
Project:	**55213 00311**
Location:	**Presidio Site 6A**
Request Date:	**07/21/05**
Samples Received:	**07/21/05**

This hardcopy data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 07/21/05. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B):
Encore samples not analyzed within 48 hours were frozen. Low response was observed for bromomethane in the ICV analyzed 06/23/05 20:06; this analyte was not detected at or above the RL in the associated samples. High response was observed for bromodichloromethane in the ICV analyzed 06/23/05 20:37; this analyte was not detected at or above the RL in the associated samples. Low responses were observed for bromomethane, 1,2-dichloroethane, and hexachlorobutadiene in the CCV analyzed 07/21/05 15:16; these analytes met minimum response criteria. High responses were observed for Freon 113 and Freon 12; these analytes were not detected at or above the RL in the associated samples. High surrogate recoveries were observed for dibromofluoromethane in LF6EX138(3.0) (lab # 180742-007) and the method blank for batch 104096; no target analytes were detected in these samples. No other analytical problems were encountered.

Semivolatile Organics by GC/MS (EPA 8270C):
High responses were observed for benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene in the CCV analyzed 07/28/05 10:30; these analytes were not detected at or above the RL in the associated samples. Low responses were observed for 4,6-dinitro-2-methylphenol and 2,4-dinitrophenol in the CCV analyzed 07/28/05 20:21; these analytes met minimum response criteria. High response was observed for benzo(g,h,i)perylene. No other analytical problems were encountered.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):
No analytical problems were encountered.

Pesticides (EPA 8081A):
High response was observed for methoxychlor in the ICV analyzed 07/19/05 12:46; average ICV drift met method requirements, and this analyte was not detected at or above the RL in the associated samples. High response was observed for methoxychlor in the CCV analyzed 07/22/05 13:46; average CCV drift met method requirements, and this analyte was not detected at or above the RL in the associated samples. No other analytical problems were

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number: 180742
Client: Mactec, Inc.
Project: 55213 00311
Location: Presidio Site 6A
Request Date: 07/21/05
Samples Received: 07/21/05

Pesticides (EPA 8081A):
encountered.

Chlorinated Herbicides (EPA 8151):
APCL in Chino, CA performed the analysis. Please see the APCL case narrative.

Polychlorinated Biphenyls (PCBs) (EPA 8082):
High surrogate recovery was observed for decachlorobiphenyl in LF6EX138(3.0) (lab # 180742-007); the corresponding TCMX surrogate recovery was within limits, and no target analytes were detected in the sample. No other analytical problems were encountered.

Metals (EPA 6010B and EPA 7471A):
High recoveries were observed for mercury in the MS/MSD for batch 104155; the parent sample was not a project sample, the BS/BSD were within limits, and the associated RPD was within limits. High % difference was observed for mercury in the serial dilution for batch 104155. No other analytical problems were encountered.

Moisture (ASTM D2216/CLP):
No analytical problems were encountered.

Curtis & Tompkins, Ltd.

Chain of Custody

MACTEC 5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954
(707) 793-3800

CHAIN OF COUSTODY FORM 180742 Seq. No.: № 1458 1/2

Samplers: A H HENKE

Lab: CURTIS TOMPKINS

Job Number: 55213 00711

Name/Location: PRESIDIO SF - FS6A

Project Manager: M A JACOBVITZ Recorder: (signature) (Signature Required)

Matrix: Water	Matrix: Soil	Matrix: Air	# Containers & Preserv.: Unpres.	H2SO4	HNO3	HCL		Sample Number: YR	Sample Number: SEQ	Date: YR	MO	DAY	TIME	Station Description	Depth	PCBs (8082)	T22 METALS (6010,6020)	Hg (7471)		VOC (8260B)	SVOC (8270C)	PEST (8081)	Cl HERBS (8150)	TPH-d,-fo	(8015, 3630A)	~~TPH-g/BTEX/MTBE~~	PNAs
	✓		1				-1	LF6EX134(2.5)		05	07	20	1500			✓	✓	✓									
	✓		4				-2	LF6EX135(2.0)		05	07	20	1520			✓	✓	✓		✓	✓	✓	✓	✓			
	✓		4				-3	DUP(072005)-1		05	07	20	1525			✓	✓	✓		✓	✓	✓	✓	✓			
	✓		4				-4	LF6EX136(1.0)		05	07	20	1540			✓	✓	✓		✓	✓	✓	✓	✓			
	✓		4				-5	DUP(072005)-2		05	07	20	1545			✓	✓	✓		✓	✓	✓	✓	✓			
	✓		1				-6	LF6EX137(4.0)		05	07	21	0735			✓	✓	✓									
	✓		4				-7	LF6EX138(3.0)		05	07	21	0745			✓	✓	✓		✓	✓	✓	✓	✓			
	✓		1				-8	LF6EX139(7.5)		05	07	21	0830											✓			✓
	✓		1				-9	LF6EX140(5.0)		05	07	21	0845											✓			✓
	✓		1				-10	LF6EX141(8.0)		05	07	21	0900											✓			✓

ADDITIONAL INFORMATION

Sample Number: YR	SEQ	TURNAROUND TIME/ REMARKS
		24 HR TAT
		RESULTS TO G A LIEBERMAN 707 793 3858

CHAIN OF CUSTODY RECORD

Relinquished By (Signature)	(Print Name)	(Company)	Date/Time
(signature)	A H HENKE	MACTEC	7/21/05 : 1055

Received By (Signature)	(Print Name)	(Company)	Date/Time
Tony Rojas (signature)	Tony Rojas	C & T	7/21/05 : 1055

Relinquished By (Signature) (Print Name) (Company) Date/Time

Received By (Signature) (Print Name) (Company) Date/Time

Relinquished By (Signature) (Print Name) (Company) Date/Time

Received By (Signature) (Print Name) (Company) Date/Time

Method of Shipment: CT COURIER

F1008-B (5/04)

Laboratory Copy *White* Project Office Copy *Yellow* Field or Office Copy *Pink*

MACTEC 5341 Old Redwood Highway
Suite 300
Petaluma, CA 94954
(707) 793-3800

CHAIN OF CUSTODY FORM

180742 Seq. No.: № 1459 2/2

Samplers: AA HENKE

Lab: CURTIS TOMPKINS

Job Number: 55213 00711

Name/Location: PRESIDIO SF - FS6A

Project Manager: M A JACUNITZ

Recorder: (Signature Required)

MATRIX Water	MATRIX Soil	MATRIX Air	# CONTAINERS & PRESERV. Unpres.	H2SO4	HNO3	HCL	SAMPLE NUMBER YR	SAMPLE NUMBER SEQ	DATE YR	MO	DAY	TIME	STATION DESCRIPTION	DEPTH	ANALYSIS REQUESTED TPH-d, -fo	PNAs
	✓		1					LF6EX142(15.0)	05	07	21	1025			✓	✓
	✓		1					DUP(072105)	05	07	21	1030			✓	✓

ADDITIONAL INFORMATION

SAMPLE NUMBER YR	SEQ	TURNAROUND TIME/ REMARKS
		24 HR TAT
		RESULTS TO G.A. LIEBERMAN (707) 793 3858

CHAIN OF CUSTODY RECORD

	(Print Name)	(Company)	Date/Time
Relinquished By (Signature)	A A HENKE	MACTEC	7/21/05 : 1055
Received By (Signature) Tony Rojas	Tony Rojas	C&T	7/21/05 : 1055
Relinquished By (Signature)			
Received By (Signature)			
Relinquished By (Signature)			
Received By (Signature)			

Method of Shipment: CT COURIER

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

F1008-B (5/04)

Curtis & Tompkins, Ltd.

COOLER RECEIPT CHECKLIST

Login#: 180742 Date Received: 7/21/05 Number of Coolers: 1
Client: MACTEC Project: Presidio SF - FS6A

A. Preliminary Examination Phase
Date Opened: 7/21/05 By (print): Peter P. (sign) PeterP

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO
   If YES, enter carrier name and airbill number:
2. Were custody seals on outside of cooler? YES NO
   How many and where? Seal date: Seal name:
3. Were custody seals unbroken and intact at the date and time of arrival? YES NO N/A
4. Were custody papers dry and intact when received? YES NO
5. Were custody papers filled out properly (ink, signed, etc.)? YES NO
6. Did you sign the custody papers in the appropriate place? YES NO
7. Was project identifiable from custody papers? YES NO
   If YES, enter project name at the top of this form.
8. If required, was sufficient ice used? Samples should be 2-6 degrees C. YES NO
   Type of ice: WET Temperature: on ice - NO TEMP

B. Login Phase
Date Logged In: 7/21/05 By (print): Peter P. (sign) PeterP

1. Describe type of packing in cooler: zip loc bags
2. Did all bottles arrive unbroken? YES NO
3. Were labels in good condition and complete (ID, date, time, signature, etc.)? YES NO
4. Did bottle labels agree with custody papers? YES NO
5. Were appropriate containers used for the tests indicated? YES NO
6. Were correct preservatives added to samples? YES NO N/A
7. Was sufficient amount of sample sent for tests indicated? YES NO
8. Were bubbles absent in VOA samples? If NO, list sample Ids below YES NO N/A
9. Was the client contacted concerning this sample delivery? YES NO
   If YES, give details below.
   Who was called? By whom? Date:

Additional Comments:

TEH results & QC Summary

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	SHAKER TABLE
Project#:	55213 00311	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	104123
Units:	mg/Kg	Received:	07/21/05
Diln Fac:	1.000	Prepared:	07/21/05

Field ID:	LF6EX138(3.0)	Moisture:	13%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-007	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	4.1 H Y	1.2
Fuel Oil C24-C36	33 H	5.8

Surrogate	%REC	Limits
Hexacosane	75	51-136

Field ID:	LF6EX139(7.5)	Moisture:	11%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-008	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.1
Fuel Oil C24-C36	ND	5.6

Surrogate	%REC	Limits
Hexacosane	80	51-136

Field ID:	LF6EX140(5.0)	Moisture:	10%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-009	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.1
Fuel Oil C24-C36	ND	5.5

Surrogate	%REC	Limits
Hexacosane	80	51-136

Field ID:	LF6EX141(8.0)	Moisture:	12%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-010	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.1
Fuel Oil C24-C36	ND	5.7

Surrogate	%REC	Limits
Hexacosane	92	51-136

H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	SHAKER TABLE
Project#:	55213 00311	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	104123
Units:	mg/Kg	Received:	07/21/05
Diln Fac:	1.000	Prepared:	07/21/05

Field ID:	LF6EX142(15.0)	Moisture:	13%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-011	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.2
Fuel Oil C24-C36	ND	5.8

Surrogate	%REC	Limits
Hexacosane	56	51-136

Field ID:	DUP(072105)	Moisture:	11%
Type:	SAMPLE	Sampled:	07/21/05
Lab ID:	180742-012	Analyzed:	07/23/05
Basis:	dry	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.1
Fuel Oil C24-C36	ND	5.6

Surrogate	%REC	Limits
Hexacosane	73	51-136

Type:	BLANK	Analyzed:	07/22/05
Lab ID:	QC302102	Cleanup Method:	EPA 3630C
Basis:	as received		

Analyte	Result	RL
Diesel C10-C24	ND	0.99
Fuel Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	62	51-136

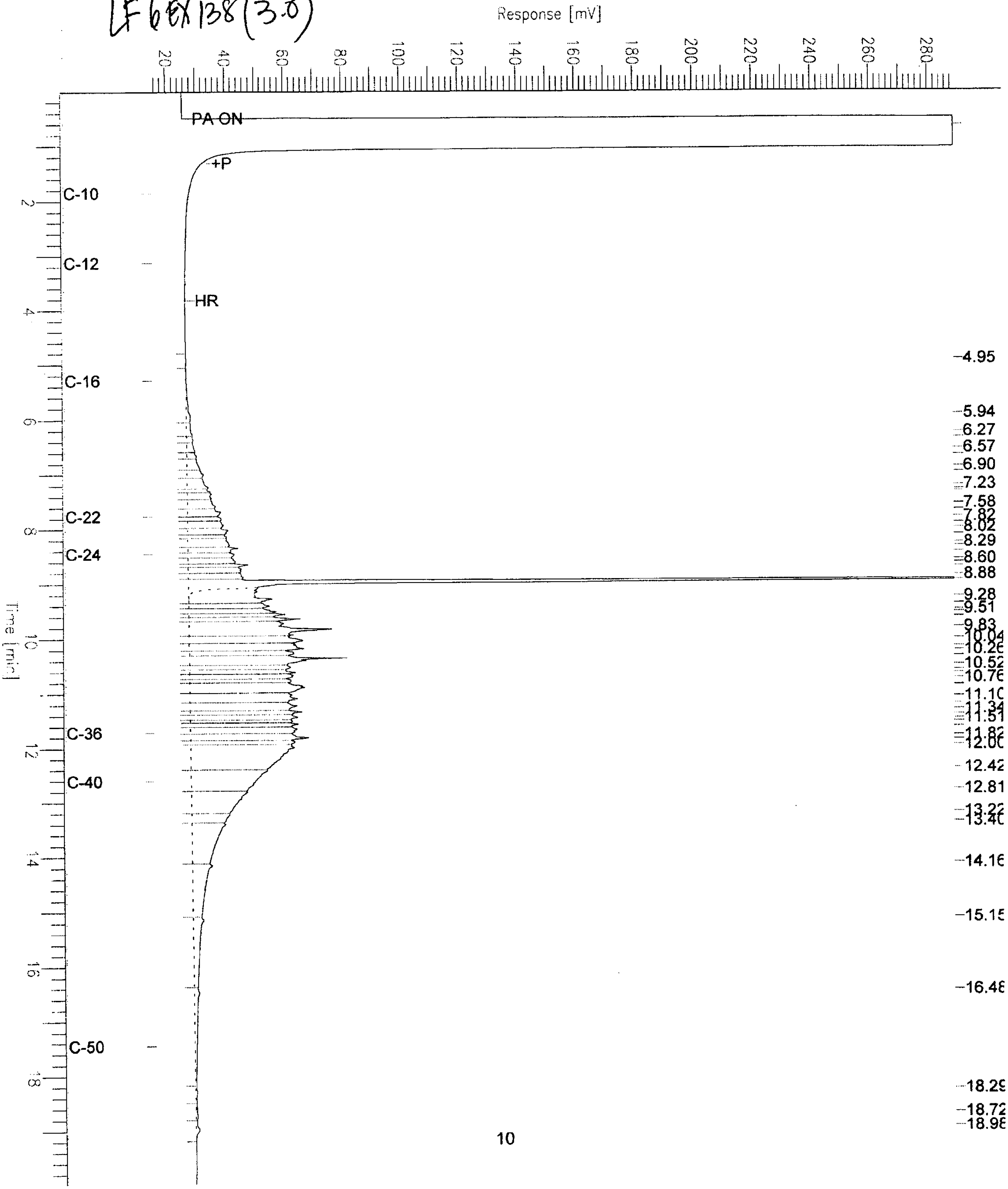
H= Heavier hydrocarbons contributed to the quantitation
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Chromatogram

Sample Name : 180742-007sg,104123
FileName : G:\GC17\CHA\201A112.RAW
Method : ATEH196.MTH
Start Time : 0.01 min   End Time : 19.99 min
Scale Factor: 0.0   Plot Offset: 15 mV

Sample #: 104123   Page 1 of 1
Date : 7/23/05 10:39 AM
Time of Injection: 7/23/05 06:04 AM
Low Point : 15.03 mV   High Point : 288.99 mV
Plot Scale: 274.0 mV

LF 6EX138 (3.0)



Chromatogram

Sample Name : ccv,S1030,dsl
FileName : G:\GC17\CHA\201A004.RAW
Method : ATEH196.MTH
Start Time : 0.01 min
Scale Factor: 0.0

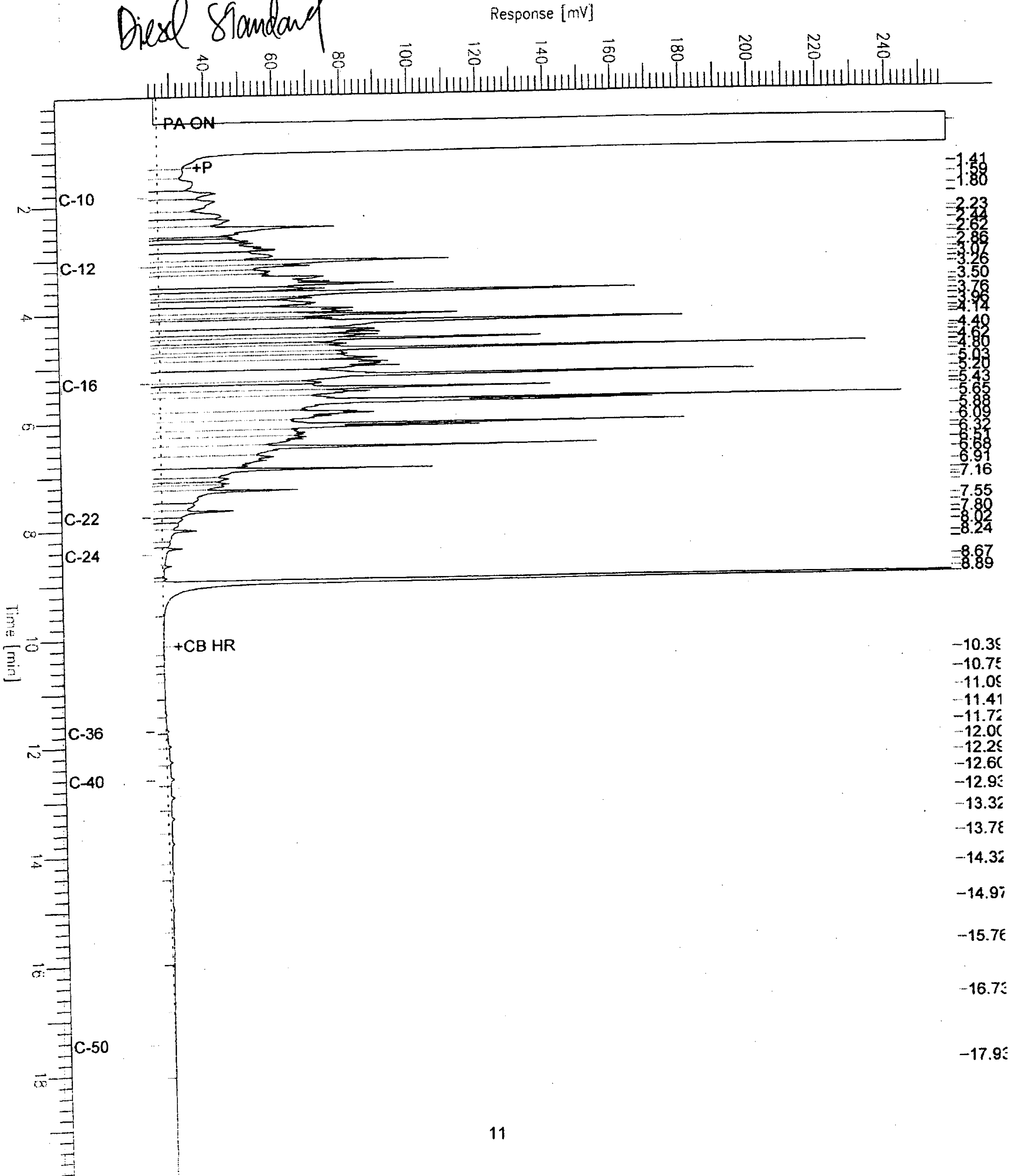
End Time : 19.97 min
Plot Offset: 23 mV

Sample #: 500mg/L
Date : 7/20/05 12:10 PM
Time of Injection: 7/20/05 11:42 AM
Low Point : 22.99 mV
Plot Scale: 234.9 mV

Page 1 of 1

High Point : 257.90 mV

Diesel Standard



Chromatogram

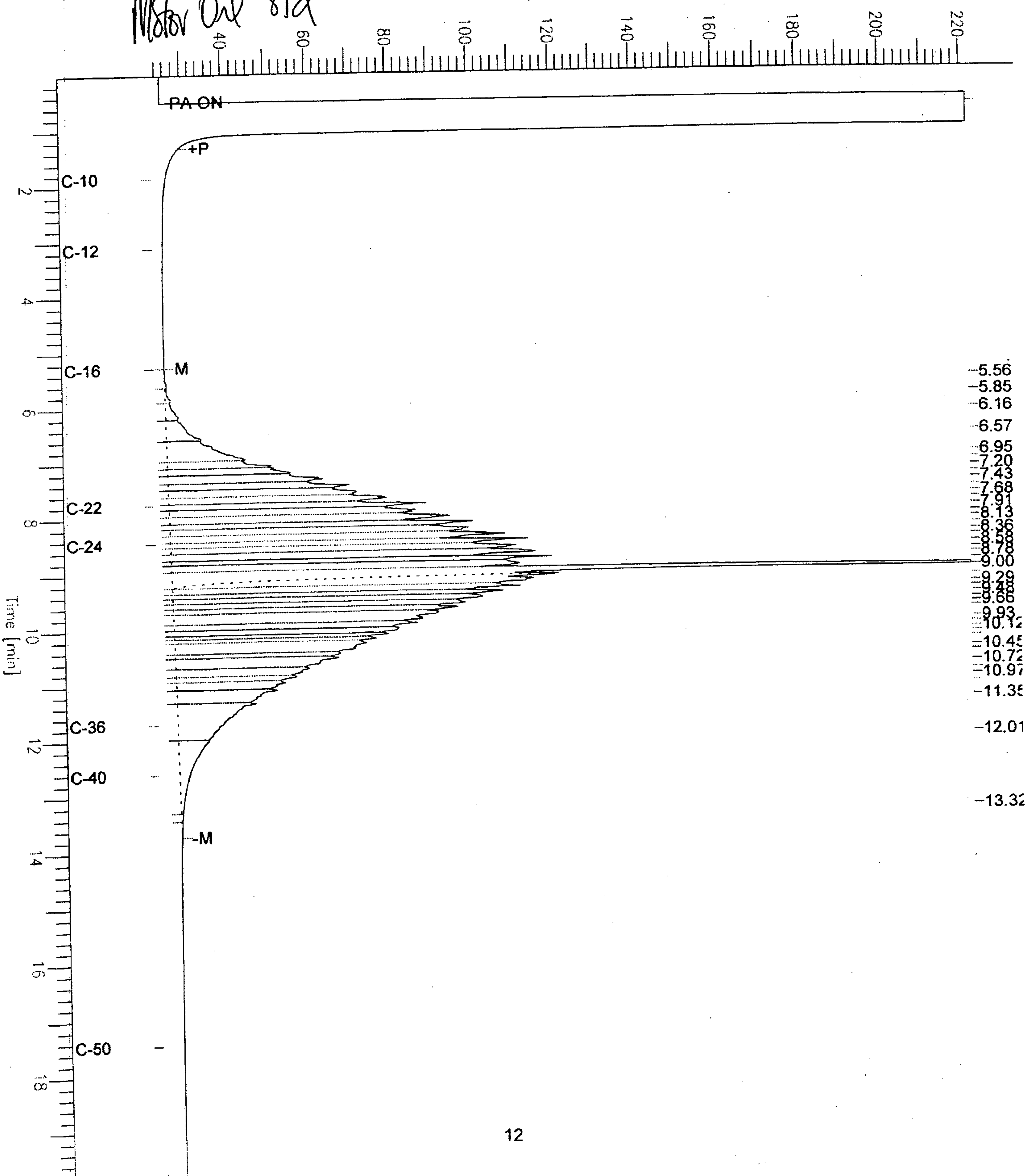
Sample Name : ccv,S1044,mo
FileName : G:\GC17\CHA\201A003.RAW
Method : ATEH196.MTH
Start Time : 0.01 min
Scale Factor: 0.0

End Time : 19.99 min
Plot Offset: 23 mV

Sample #: 500mg/L
Date : 7/20/05 12:06 PM
Time of Injection: 7/20/05 10:30 AM
Low Point : 23.04 mV
Plot Scale: 198.5 mV

High Point : 221.56 mV

Motor Oil STd



Curtis & Tompkins, Ltd.

PAHs by 8270-SIM Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	LF6EX139(7.5)	Batch#:	104151
Lab ID:	180742-008	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	dry	Analyzed:	07/24/05
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL
Naphthalene	ND	5.7
Acenaphthylene	ND	5.7
Acenaphthene	ND	5.7
Fluorene	ND	5.7
Phenanthrene	ND	5.7
Anthracene	ND	5.7
Fluoranthene	ND	5.7
Pyrene	ND	5.7
Benzo(a)anthracene	ND	5.7
Chrysene	ND	5.7
Benzo(b)fluoranthene	ND	5.7
Benzo(k)fluoranthene	ND	5.7
Benzo(a)pyrene	ND	5.7
Indeno(1,2,3-cd)pyrene	ND	5.7
Dibenz(a,h)anthracene	ND	5.7
Benzo(g,h,i)perylene	ND	5.7

Surrogate	%REC	Limits
Nitrobenzene-d5	91	37-140
2-Fluorobiphenyl	95	38-120
Terphenyl-d14	107	44-137

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	LF6EX140(5.0)	Batch#:	104151
Lab ID:	180742-009	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	dry	Analyzed:	07/24/05
Diln Fac:	1.000		

Moisture: 10%

Analyte	Result	RL
Naphthalene	ND	5.6
Acenaphthylene	ND	5.6
Acenaphthene	ND	5.6
Fluorene	ND	5.6
Phenanthrene	ND	5.6
Anthracene	ND	5.6
Fluoranthene	ND	5.6
Pyrene	ND	5.6
Benzo(a)anthracene	ND	5.6
Chrysene	ND	5.6
Benzo(b)fluoranthene	ND	5.6
Benzo(k)fluoranthene	ND	5.6
Benzo(a)pyrene	ND	5.6
Indeno(1,2,3-cd)pyrene	ND	5.6
Dibenz(a,h)anthracene	ND	5.6
Benzo(g,h,i)perylene	ND	5.6

Surrogate	%REC	Limits
Nitrobenzene-d5	90	37-140
2-Fluorobiphenyl	94	38-120
Terphenyl-d14	100	44-137

ND= Not Detected
RL= Reporting Limit

36.0

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	LF6EX141(8.0)	Batch#:	104151
Lab ID:	180742-010	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	dry	Analyzed:	07/24/05
Diln Fac:	1.000		

Moisture: 12%

Analyte	Result	RL
Naphthalene	ND	5.7
Acenaphthylene	ND	5.7
Acenaphthene	ND	5.7
Fluorene	ND	5.7
Phenanthrene	ND	5.7
Anthracene	ND	5.7
Fluoranthene	ND	5.7
Pyrene	ND	5.7
Benzo(a)anthracene	ND	5.7
Chrysene	ND	5.7
Benzo(b)fluoranthene	ND	5.7
Benzo(k)fluoranthene	ND	5.7
Benzo(a)pyrene	ND	5.7
Indeno(1,2,3-cd)pyrene	ND	5.7
Dibenz(a,h)anthracene	ND	5.7
Benzo(g,h,i)perylene	ND	5.7

Surrogate	%REC	Limits
Nitrobenzene-d5	76	37-140
2-Fluorobiphenyl	77	38-120
Terphenyl-d14	82	44-137

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	LF6EX142(15.0)	Batch#:	104151
Lab ID:	180742-011	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	dry	Analyzed:	07/24/05
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL
Naphthalene	ND	5.7
Acenaphthylene	ND	5.7
Acenaphthene	ND	5.7
Fluorene	ND	5.7
Phenanthrene	ND	5.7
Anthracene	ND	5.7
Fluoranthene	ND	5.7
Pyrene	ND	5.7
Benzo(a)anthracene	ND	5.7
Chrysene	ND	5.7
Benzo(b)fluoranthene	ND	5.7
Benzo(k)fluoranthene	ND	5.7
Benzo(a)pyrene	ND	5.7
Indeno(1,2,3-cd)pyrene	ND	5.7
Dibenz(a,h)anthracene	ND	5.7
Benzo(g,h,i)perylene	ND	5.7

Surrogate	%REC	Limits
Nitrobenzene-d5	95	37-140
2-Fluorobiphenyl	99	38-120
Terphenyl-d14	110	44-137

ND= Not Detected
RL= Reporting Limit

38.0

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	DUP(072105)	Batch#:	104151
Lab ID:	180742-012	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	dry	Analyzed:	07/24/05
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL
Naphthalene	ND	5.7
Acenaphthylene	ND	5.7
Acenaphthene	ND	5.7
Fluorene	ND	5.7
Phenanthrene	ND	5.7
Anthracene	ND	5.7
Fluoranthene	ND	5.7
Pyrene	ND	5.7
Benzo(a)anthracene	ND	5.7
Chrysene	ND	5.7
Benzo(b)fluoranthene	ND	5.7
Benzo(k)fluoranthene	ND	5.7
Benzo(a)pyrene	ND	5.7
Indeno(1,2,3-cd)pyrene	ND	5.7
Dibenz(a,h)anthracene	ND	5.7
Benzo(g,h,i)perylene	ND	5.7

Surrogate	%REC	Limits
Nitrobenzene-d5	96	37-140
2-Fluorobiphenyl	95	38-120
Terphenyl-d14	78	44-137

ND= Not Detected
RL= Reporting Limit
Page 1 of 1

39.0

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC302222	Batch#:	104151
Matrix:	Soil	Prepared:	07/22/05
Units:	ug/Kg	Analyzed:	07/24/05
Basis:	as received		

Analyte	Result	RL
Naphthalene	ND	5.0
Acenaphthylene	ND	5.0
Acenaphthene	ND	5.0
Fluorene	ND	5.0
Phenanthrene	ND	5.0
Anthracene	ND	5.0
Fluoranthene	ND	5.0
Pyrene	ND	5.0
Benzo(a)anthracene	ND	5.0
Chrysene	ND	5.0
Benzo(b)fluoranthene	ND	5.0
Benzo(k)fluoranthene	ND	5.0
Benzo(a)pyrene	ND	5.0
Indeno(1,2,3-cd)pyrene	ND	5.0
Dibenz(a,h)anthracene	ND	5.0
Benzo(g,h,i)perylene	ND	5.0

Surrogate	%REC	Limits
Nitrobenzene-d5	70	37-140
2-Fluorobiphenyl	89	38-120
Terphenyl-d14	100	44-137

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC302223	Batch#:	104151
Matrix:	Soil	Prepared:	07/22/05
Units:	ug/Kg	Analyzed:	07/24/05
Basis:	as received		

Analyte	Spiked	Result	%REC	Limits
Acenaphthene	32.81	33.43	102	49-128
Pyrene	32.81	34.95	107	49-128

Surrogate	%REC	Limits
Nitrobenzene-d5	80	37-140
2-Fluorobiphenyl	105	38-120
Terphenyl-d14	112	44-137

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	EPA 3550B
Project#:	55213 00311	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	104151
MSS Lab ID:	180755-030	Sampled:	07/21/05
Matrix:	Soil	Received:	07/21/05
Units:	ug/Kg	Prepared:	07/22/05
Basis:	as received	Analyzed:	07/31/05
Diln Fac:	5.000		

Type: MS Lab ID: QC302224

Analyte	MSS Result	Spiked	Result	%REC	Limits
Acenaphthene	<2.722	33.28	26.79	81	39-138
Pyrene	<4.829	33.28	35.79	108	28-159

Surrogate	%REC	Limits
Nitrobenzene-d5	96	37-140
2-Fluorobiphenyl	85	38-120
Terphenyl-d14	80	44-137

Type: MSD Lab ID: QC302225

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Acenaphthene	33.15	28.09	85	39-138	5	39
Pyrene	33.15	40.70	123	28-159	13	45

Surrogate	%REC	Limits
Nitrobenzene-d5	104	37-140
2-Fluorobiphenyl	91	38-120
Terphenyl-d14	86	44-137

RPD= Relative Percent Difference

Data File: \\GCMSSERVER\DD\chem\MSBNA03.i\072205.b\VGH09.D

Date : 22-JUL-2005 14:25

Client ID: dftpp tune std

Instrument: MSBNA03.i

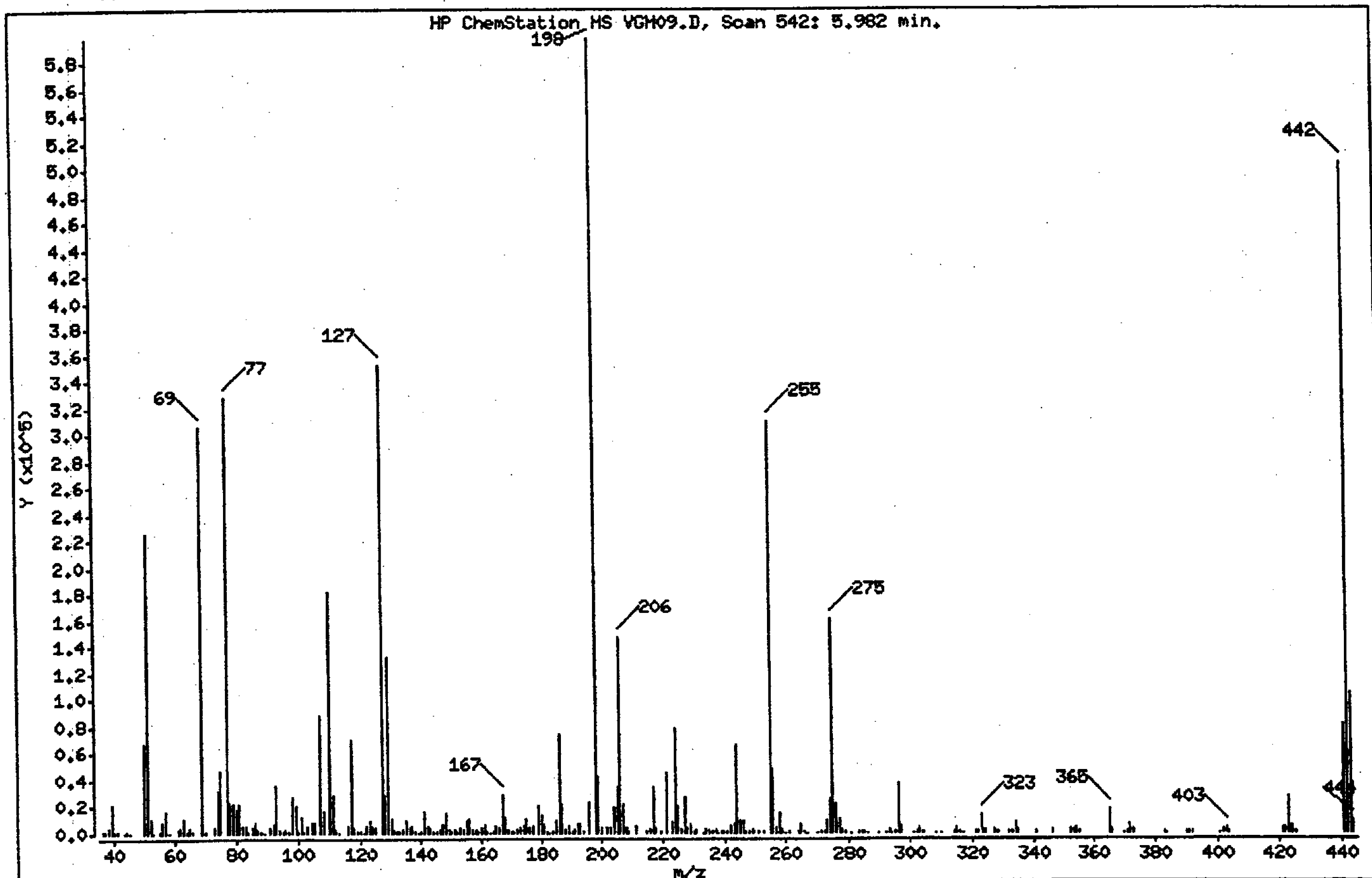
Sample Info: TUN,S800

Operator: BVD

Column phase: Xti 5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	37.76
68	Less than 1.99% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	51.24
70	Less than 2.00% of mass 69	0.26 (0.51)
127	40.00 - 60.00% of mass 198	58.96
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.22
275	10.00 - 30.00% of mass 198	27.05
365	Greater than 1.00% of mass 198	2.98
441	Present, but less than mass 443	13.66
442	40.00 - 99.99% of mass 198	84.26
443	17.00 - 23.00% of mass 442	17.52 (20.80)

BNA03

~~SIM ICAL~~

07/25/06

Data File: \\GCMSSERVER\DD\chem\MSBNA03.i\072405.b\VG001.D

Date : 24-JUL-2005 15:26

Client ID: dftpp tune std

Instrument: MSBNA03.i

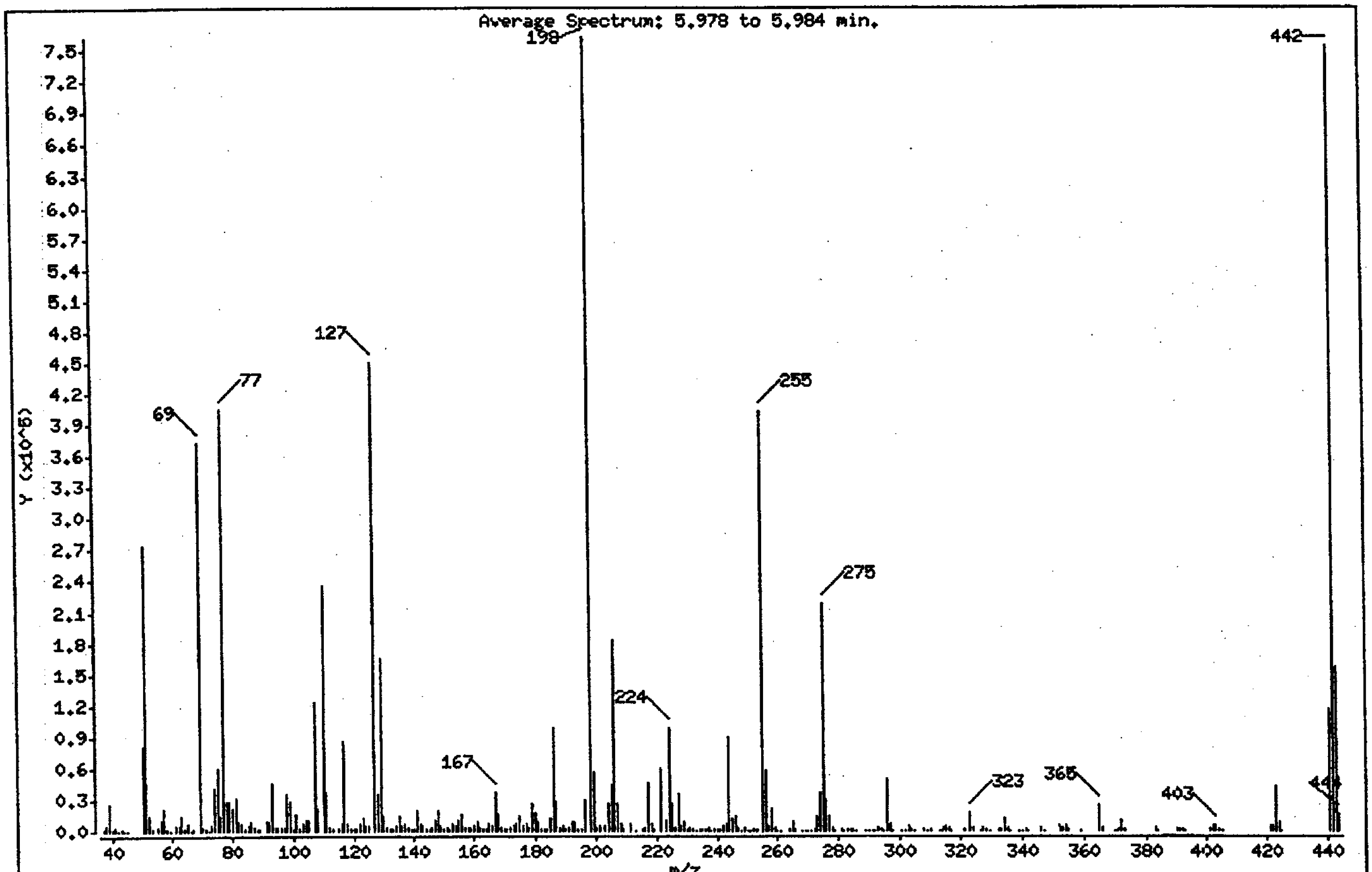
Sample Info: TUN,S800

Operator: BVD

Column phase: Xti 5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	38.96
68	Less than 1.99% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	48.82
70	Less than 2.00% of mass 69	0.37 (0.76)
127	40.00 - 60.00% of mass 198	58.91
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.29
275	10.00 - 30.00% of mass 198	28.64
365	Greater than 1.00% of mass 198	3.13
441	Present, but less than mass 443	15.24
442	40.00 - 99.99% of mass 198	98.90
443	17.00 - 23.00% of mass 442	20.61 (20.84)

T 7/25/05

Data File: \\GCMSSERVER\DD\chem\MSBNA03.i\072805.b\VGS01.D

Date : 28-JUL-2005 08:40

Client ID: dftpp tune std

Instrument: MSBNA03.i

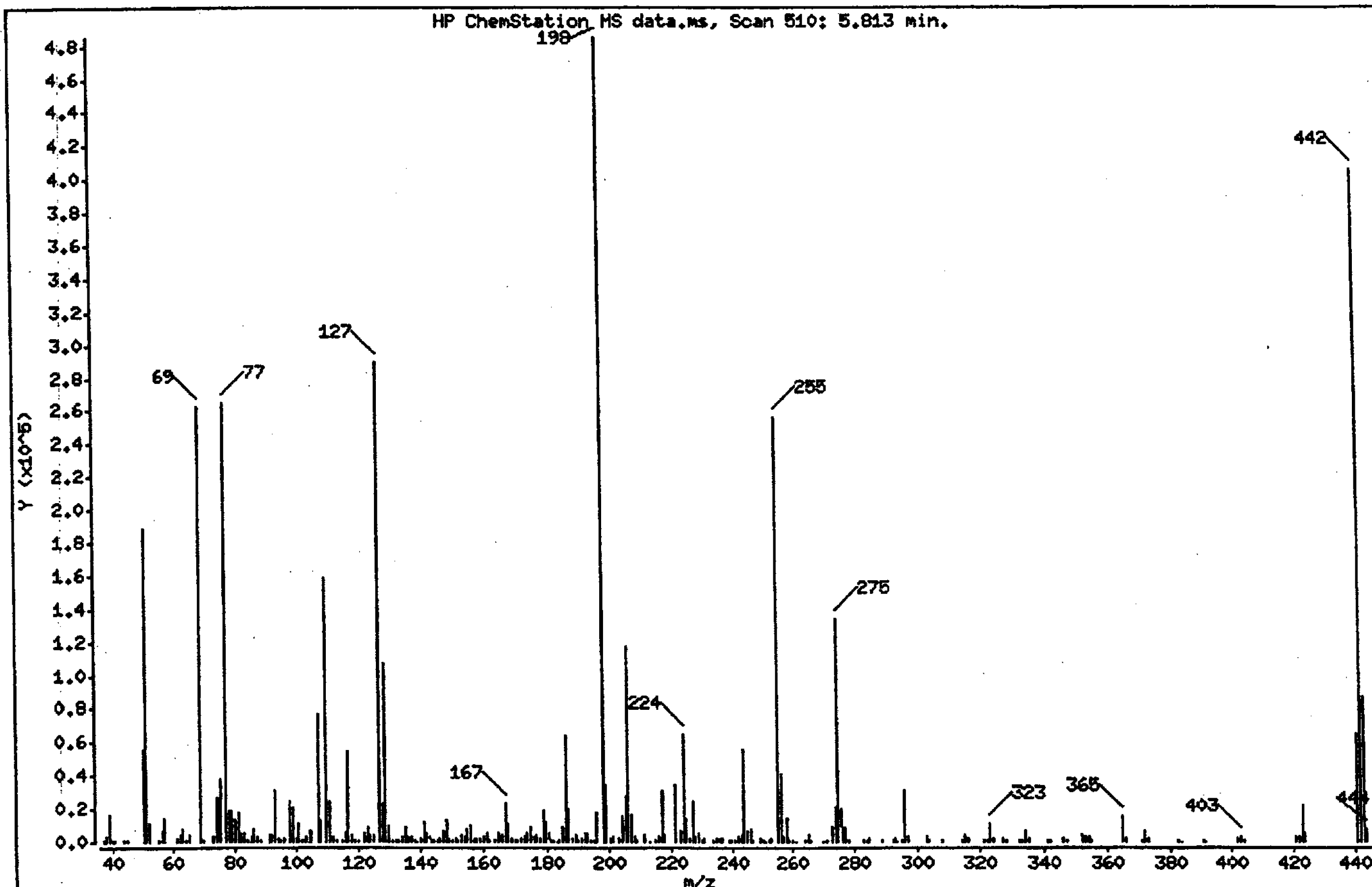
Sample Info: TUN,S800

Operator: BVD

Column phase: Xti 5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	39.02
68	Less than 1.99% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	54.08
70	Less than 2.00% of mass 69	0.33 (0.61)
127	40.00 - 60.00% of mass 198	59.73
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.04
275	10.00 - 30.00% of mass 198	27.62
365	Greater than 1.00% of mass 198	3.11
441	Present, but less than mass 443	13.29
442	40.00 - 99.99% of mass 198	83.56
443	17.00 - 23.00% of mass 442	18.01 (21.56)

8270-SIM ECL

7/28/05

 07/28/05

Data File: \\GCMSSERVER\DD\chem\MSBNA03.i\073105.b\VGV01.D

Date : 31-JUL-2005 09:37

Client ID: dftpp tune std

Instrument: MSBNA03.i

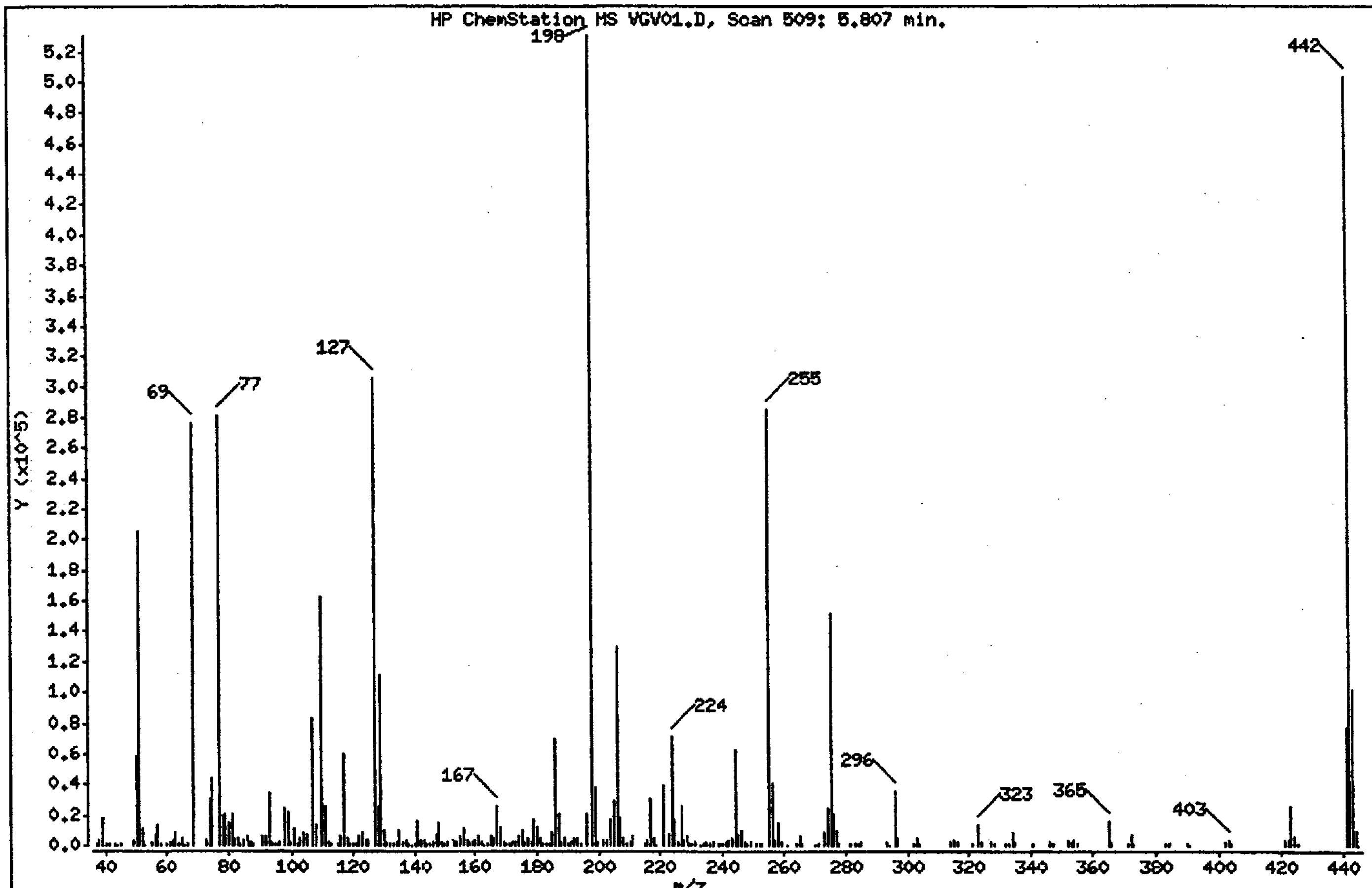
Sample Info: TUN,S800

Operator: BVD

Column phase: Xti 5

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	38.70
68	Less than 1.99% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	51.98
70	Less than 2.00% of mass 69	0.00 (0.00)
127	40.00 - 60.00% of mass 198	57.59
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	7.15
275	10.00 - 30.00% of mass 198	28.61
365	Greater than 1.00% of mass 198	3.07
441	Present, but less than mass 443	14.42
442	40.00 - 99.99% of mass 198	94.91
443	17.00 - 23.00% of mass 442	19.11 (20.13)

8/1/05

INITIAL CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instrument: MSBNA03 HP GCMS BNA 03 Reviewed By:
Calnum: 525292870002 Name: 3PAHSIM Type: (normal) Date: 22-JUL-2005 14:53 Inj Vol (uL): 1

Calibration levels:

#	Filename	Segnum	Samplenum	Analyzed	Standards
1	vgm10	525292870010	0.1ug/mL	22-JUL-2005 14:53	S755
2	vgm11	525292870011	0.2ug/mL	22-JUL-2005 15:24	S756
3	vgm12	525292870012	0.5ug/mL	22-JUL-2005 15:55	S757
4	vgm13	525292870013	1.0ug/mL	22-JUL-2005 16:27	S754
5	vgm14	525292870014	2.0ug/mL	22-JUL-2005 16:59	S758
6	vgm15	525292870015	5.0ug/mL	22-JUL-2005 17:31	S759
7	vgm16	525292870016	10.0ug/mL	22-JUL-2005 18:03	S760

ICAL - OK

ICV - OK

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	units	avg	r^2 %RSD	MinRF	MnR^2	MxRSD	Flags
1,4-Dioxane	0.3845m	0.4373m	0.4524m	0.4242m	0.4889m	0.4320	0.3772	AVRG	R		2.336055		ng	0.4281	9	0.0500	.99	15	
Naphthalene	0.9631	0.9089	0.8722	0.7946	0.9770	0.7988	0.7661	AVRG	R		1.151192		ng	0.8687	10	0.0500	.99	15	
2-Methylnaphthalene	0.6557	0.6059	0.6071	0.5705	0.6944	0.5794	0.5671	AVRG	R		1.635451		ng	0.6115	8	0.0500	.99	15	
Acenaphthylene	1.1713m	1.4997	1.5395	1.4835	1.8365	1.5457	1.4916	AVRG	R		0.662381		ng	1.5097	13	0.0500	.99	15	
Acenaphthene	0.9719	1.0134	0.9982	0.9188	1.1356	0.9595	0.9109	AVRG	R		1.013282		ng	0.9869	8	0.0500	.99	15	
Fluorene	1.0813	1.1265	1.1026	1.0496	1.3324	1.1322	1.0819	AVRG	R		0.885350		ng	1.1295	8	0.0500	.99	15	
Phenanthrene	0.9239	0.9449	0.9071	0.8082	1.0665	0.8534	0.8029	AVRG	R		1.109897		ng	0.9010	10	0.0500	.99	15	
Anthracene	0.7335	0.7998	0.7418	0.6996	0.9420	0.7770	0.7323	AVRG	R		1.290090		ng	0.7751	10	0.0500	.99	15	
Fluoranthene	0.9427	0.9498	0.9400	0.8430	1.1189	0.9080	0.8484	AVRG	R		1.068578		ng	0.9358	10	0.0500	.99	15	
Pyrene	1.0545	1.0796	1.0534	0.9248	1.2368	1.0143	0.9745	AVRG	R		0.953962		ng	1.0483	9	0.0500	.99	15	
Benzo(a)anthracene	0.9600	0.9749	0.9546	0.8388	1.1119	0.9300	0.8796	AVRG	R		1.052665		ng	0.9500	9	0.0500	.99	15	
Chrysene	0.9624	0.9847	0.9558	0.8377	1.1085	0.8730	0.8197	AVRG	R		1.070041		ng	0.9345	11	0.0500	.99	15	
Benzo(b)fluoranthene	0.9338	0.9748	0.9586	0.7838	1.0927	0.8883	0.9379	AVRG	R		1.065478		ng	0.9385	10	0.0500	.99	15	
Benzo(k)fluoranthene	1.0150	1.0241	0.9633	0.8395	1.1714	0.9881	0.8784	AVRG	R		1.017471		ng	0.9828	11	0.0500	.99	15	
Benzo(a)pyrene	1.0360m	1.2240	1.3021	1.1377	1.6230	1.4130		QUAD	R	0.123840	0.549480	0.019549	ng	1.2893	0.996	0.0500	.99	15	
Indeno(1,2,3-cd)pyrene	0.9781	0.9745	0.9252	0.7960	1.0958	0.9236	0.9109	AVRG	R		1.059926		ng	0.9435	10	0.0500	.99	15	
Dibenz(a,h)anthracene	0.8007m	0.7861	0.7507	0.6526	0.9149	0.7537	0.7561	AVRG	R		1.292741		ng	0.7736	10	0.0500	.99	15	
Benzo(g,h,i)perylene	0.9384	0.8609	0.8017	0.6687	0.8961	0.7413	0.7343	AVRG	R		1.240840		ng	0.8059	12	0.0500	.99	15	

Flags used: m=manual integration
Curves: AVRG: Average response factor LINR: Linear regression QUAD: Quadratic regression
Instrument amount = a0 + response * a1 + response^2 * a2

a 7/25/05

7/26/05

INITIAL CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instrument: MSBNA03 HP GCMS BNA 03 Reviewed By:
Calnum: 525292870002 Name: 3PAHSIM Type: (normal) Date: 22-JUL-2005 14:53 Inj Vol (uL): 1

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	units	avg	r^2 %RSD	MinRF	MnR^2	MxRSD	Flags
Nitrobenzene-d5	0.1542m	0.1454m	0.2569	0.2241	0.2776	0.2423	0.2364	LINR	R	-0.03494	4.206042		ng	0.2196	0.998	0.0500	.99	15	
2-Fluorobiphenyl	1.5482	1.5397	1.5206	1.3222	1.6626	1.2995	1.2211	AVRG	R		0.692117		ng	1.4448	11	0.0500	.99	15	
Terphenyl-d14	1.0141	0.9571	1.0447	0.8132	1.0966	0.8758	0.8247	AVRG	R		1.056399		ng	0.9466	12	0.0500	.99	15	

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Flags used: m=manual integration
Curves: AVRG: Average response factor LINR: Linear regression QUAD: Quadratic regression
Instrument amount = a0 + response * a1 + response^2 * a2

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SECOND SOURCE CALIBRATION VERIFICATION
Curtis & Tompkins Laboratories

:nstid : MSBNA03
Seqnum : 525292870017
Calnum : 525292870002
Standards: S797

Run Name : 1.0ug/mL
Filename : vgm17
Caldate : 22-JUL-2005

Injected : 22-JUL-2005 18:35
Caltype :

Analyte	SpkAmt	QuantAmt	Units	%D	Max	Flags
1,4-Dioxane	1.000000	1.063600	ng	6	30	m
Naphthalene	1.000000	1.035900	ng	4	30	
2-Methylnaphthalene	1.000000	1.019000	ng	2	30	
Acenaphthylene	1.000000	1.147200	ng	15	30	
Acenaphthene	1.000000	1.026800	ng	3	20	
Fluorene	1.000000	1.061600	ng	6	30	
Phenanthrene	1.000000	1.100500	ng	10	30	
Anthracene	1.000000	1.129200	ng	13	30	
Fluoranthene	1.000000	1.080300	ng	8	20	
Pyrene	1.000000	0.968000	ng	-3	30	
Benzo(a)anthracene	1.000000	1.019800	ng	2	30	
Chrysene	1.000000	0.993400	ng	-1	30	
Benzo(b)fluoranthene	1.000000	1.155200	ng	16	30	
Benzo(k)fluoranthene	1.000000	1.095400	ng	10	30	
Benzo(a)pyrene	1.000000	0.975300	ng	-2	20	
Indeno(1,2,3-cd)pyrene	1.000000	1.051500	ng	5	30	
Dibenz(a,h)anthracene	1.000000	0.945200	ng	-5	30	
Benzo(g,h,i)perylene	1.000000	1.107800	ng	11	30	

ISTD (CCV=vgm03)	CCV Area	Area	%Diff	CCV RT	RT	Diff
1,4-Dichlorobenzene-d4	85184	82607	-3.03	7.16	7.08	-0.08
Naphthalene-d8	352518	357833	1.51	8.88	8.78	-0.10
Acenaphthene-d10	184158	184662	0.27	11.46	11.36	-0.10
Phenanthrene-d10	323185	312518	-3.30	13.69	13.60	-0.09
Chrysene-d12	294486	293319	-0.40	17.54	17.45	-0.09
Perylene-d12	205146	292914	42.78	19.34	19.23	-0.11

m=manual integration
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YSNAUS & LIO-SIM Calibration

INITIAL CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instrument: MSBNA03 HP GCMS BNA 03 Reviewed By:
Calnum: 525301480001 Name: 3PAHSIM Type: (normal) Date: 28-JUL-2005 09:08 Inj Vol (uL): 1

Calibration levels:

#	Filename	Segnum	Samplenum	Analyzed	Standards
1	vgs02	525301480002	0.1ug/mL	28-JUL-2005 09:08	S755
2	vgs04	525301480004	0.5ug/mL	28-JUL-2005 10:16	S1212
3	vgs05	525301480005	1.0ug/mL	28-JUL-2005 10:50	S1213
4	vgs06	525301480006	2.0ug/mL	28-JUL-2005 11:25	S1214
5	vgs07	525301480007	5.0ug/mL	28-JUL-2005 11:59	S1215
6	vgs08	525301480008	10.0ug/mL	28-JUL-2005 13:30	S1216
7	vgs09	525301480009	0.2ug/mL	28-JUL-2005 14:03	S756

→ Levels run out of sequence due to bad Standard prep

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	units	avg	%RSD	MinRF	MnR^2	MxRSD	Flags
1,4-Dioxane	0.3875m	0.4462m	0.4951m	0.4619m	0.4315m	0.4354	0.3452m	AVRG	R		2.331154		ng	0.4290	11	0.0500	.99	15	
Naphthalene	0.9595	1.0080	0.9703	0.9717	0.9179	0.8304	0.9673	AVRG	R		1.056590		ng	0.9464	6	0.0500	.99	15	
2-Methylnaphthalene	0.6671	0.7155	0.7176	0.6948	0.6525	0.6600	0.6263	AVRG	R		1.478700		ng	0.6763	5	0.0500	.99	15	
Acenaphthylene	1.4582	1.6957	1.6638	1.6898	1.6561	1.5766	1.5951	AVRG	R		0.617545		ng	1.6193	5	0.0500	.99	15	
Acenaphthene	0.9803	1.0270	1.0361	1.0207	0.9958	0.9524	1.0064	AVRG	R		0.997322		ng	1.0027	3	0.0500	.99	15	
Fluorene	1.1217	1.2092	1.1770	1.1759	1.1518	1.1288	1.1828	AVRG	R		0.859175		ng	1.1639	3	0.0500	.99	15	
Phenanthrene	0.9251	0.9656	0.9271	0.9210	0.9012	0.8150	0.9889	AVRG	R		1.086270		ng	0.9206	6	0.0500	.99	15	
Anthracene	0.7050	0.7968	0.7944	0.8047	0.8079	0.7465	0.8417	AVRG	R		1.273394		ng	0.7853	6	0.0500	.99	15	
Fluoranthene	0.9917	1.0424	1.0203	0.9905	0.9645	0.8986	1.1165	AVRG	R		0.996534		ng	1.0035	7	0.0500	.99	15	
Pyrene	1.1676	1.1743	1.1248	1.0990	1.1008	0.9884	1.3020	AVRG	R		0.879736		ng	1.1367	8	0.0500	.99	15	
Benzo(a)anthracene	0.9704	0.9829	0.9650	0.9639	0.9782	0.8883	1.0647	AVRG	R		1.027380		ng	0.9733	5	0.0500	.99	15	
Chrysene	1.0293	0.9979	0.9663	0.9333	0.9434	0.8136	1.0999	AVRG	R		1.031889		ng	0.9691	9	0.0500	.99	15	
Benzo(b)fluoranthene	1.2442	1.2453	1.1744	1.1353	1.1359	1.0275	1.4478	AVRG	R		0.832314		ng	1.2015	11	0.0500	.99	15	
Benzo(k)fluoranthene	1.3805	1.3119	1.3047	1.2938	1.3513	1.1887	1.3288	AVRG	R		0.764215		ng	1.3085	5	0.0500	.99	15	
Benzo(a)pyrene	1.0121	0.9829	0.9602	0.9475	0.9798	0.8994	1.0793	AVRG	R		1.020214		ng	0.9802	6	0.0500	.99	15	
Indeno(1,2,3-cd)pyrene	1.2637	1.1656	1.1301	1.1244	1.1509	1.0739	1.3266	AVRG	R		0.850011		ng	1.1765	7	0.0500	.99	15	
Dibenz(a,h)anthracene	0.9910	0.9324	0.9178	0.9180	0.9560	0.8916	1.0455	AVRG	R		1.052247		ng	0.9503	6	0.0500	.99	15	
Benzo(g,h,i)perylene	1.3266	1.0025	0.9657	0.9412	0.9355		1.2121	AVRG	R		0.939904		ng	1.0639	15	0.0500	.99	15	

ICAL: Ok
ICV: Ok

07/28/05

07/28/05

Flags used: m=manual integration
Curves: AVRG: Average response factor
Instrument amount = a0 + response * a1 + response^2 * a2

INITIAL CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instrument: MSBNA03 HP GCMS BNA 03 Reviewed By:
Calnum: 525301480001 Name: 3PAHSIM Type: (normal) Date: 28-JUL-2005 09:08 Inj Vol (uL): 1

Analyte	L1	L2	L3	L4	L5	L6	L7	Type	X	a0	a1	a2	units	avg	r^2 %RSD	MinRF	MnR^2	MxRSD	Flags
Nitrobenzene-d5	0.2125m	0.2288m	0.2352m	0.2435m	0.2488m	0.2707	0.2622	AVRG	R		4.113895		ng	0.2431	8	0.0500	.99	15	
2-Fluorobiphenyl	1.3762	1.4045	1.3448	1.3305	1.3042	1.2249	1.3993	AVRG	R		0.745922		ng	1.3406	5	0.0500	.99	15	
Terphenyl-d14	1.1724	1.0282	0.9789	0.9697	0.9612	0.8528	1.2322	AVRG	R		0.972851		ng	1.0279	13	0.0500	.99	15	

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Flags used: m=manual integration
Curves: AVRG: Average response factor
Instrument amount = a0 + response * a1 + response^2 * a2

SECOND SOURCE CALIBRATION VERIFICATION
Curtis & Tompkins Laboratories

nstid	: MSBNA03	Run Name	: 1.0ug/mL		
eqnum	: 525301480010	Filename	: vgs10	Injected	: 28-JUL-2005 14:36
alnum	: 525301480001	Caldate	: 28-JUL-2005	Caltype	:
tandards:	S797				

Analyte	SpkAmt	QuantAmt	Units	%D	Max	Flags
1,4-Dioxane	1.000000	1.010600	ng	1	30	m
Naphthalene	1.000000	1.125400	ng	13	30	
2-Methylnaphthalene	1.000000	1.046500	ng	5	30	
Acenaphthylene	1.000000	1.022900	ng	2	30	
Acenaphthene	1.000000	0.999600	ng	0	20	
Fluorene	1.000000	0.996100	ng	0	30	
Phenanthrene	1.000000	1.063700	ng	6	30	
Anthracene	1.000000	1.077000	ng	8	30	
Fluoranthene	1.000000	1.042500	ng	4	20	
Pyrene	1.000000	0.983300	ng	-2	30	
Benzo(a)anthracene	1.000000	0.998500	ng	0	30	
Chrysene	1.000000	0.949400	ng	-5	30	
Benzo(b)fluoranthene	1.000000	0.999800	ng	0	30	
Benzo(k)fluoranthene	1.000000	1.052700	ng	5	30	
Benzo(a)pyrene	1.000000	1.097000	ng	10	20	
Indeno(1,2,3-cd)pyrene	1.000000	1.000300	ng	0	30	
Dibenz(a,h)anthracene	1.000000	0.897900	ng	-10	30	
Benzo(g,h,i)perylene	1.000000	1.013100	ng	1	30	

NO INTERNAL STANDARD REFERENCE RUN FOUND FOR CCV

Internal standards: DCBZ14D4, NAPHD8, ACEND10, PHEND10, CHYD12, PERYD12

m=manual integration

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CONTINUING CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instid : MSBNA03
Seqnum : 525296126002
Calnum : 525292870002
Standards: S754

Run Name :
Filename : vgo02
Caldate : 22-JUL-2005

IDF : 1.0
Injected : 24-JUL-2005 15:45
Caltype :

Analyte	Avg RF/CF	RF/CF	SpkAmt	QuantAmt	Units	%D	Max %D	Min RF	Flags
1,4-Dioxane	0.4281	0.4725	1.000000	1.103800	ng	10	30	0.0500	m
Naphthalene	0.8687	0.9025	1.000000	1.039000	ng	4	30	0.0500	
2-Methylnaphthalene	0.6115	0.6191	1.000000	1.012500	ng	1	30	0.0500	
Acenaphthylene	1.5097	1.6673	1.000000	1.104400	ng	10	30	0.0500	
Acenaphthene	0.9869	1.0057	1.000000	1.019100	ng	2	20	0.0500	
Fluorene	1.1295	1.1759	1.000000	1.041100	ng	4	30	0.0500	
Phenanthrene	0.9010	0.9861	1.000000	1.094500	ng	9	30	0.0500	
Anthracene	0.7751	0.8868	1.000000	1.144100	ng	14	30	0.0500	
Fluoranthene	0.9358	1.0726	1.000000	1.146100	ng	15	20	0.0500	
Pyrene	1.0483	1.0716	1.000000	1.022300	ng	2	30	0.0500	
Benzo(a)anthracene	0.9500	1.0319	1.000000	1.086200	ng	9	30	0.0500	
Chrysene	0.9345	0.9134	1.000000	0.977400	ng	-2	30	0.0500	
Benzo(b)fluoranthene	0.9385	0.9665	1.000000	1.029800	ng	3	30	0.0500	
Benzo(k)fluoranthene	0.9828	1.1395	1.000000	1.159400	ng	16	30	0.0500	
Benzo(a)pyrene	1.2893	1.4350	1.000000	0.952600	ng	-5	20	0.0500	
Indeno(1,2,3-cd)pyrene	0.9435	0.9253	1.000000	0.980700	ng	-2	30	0.0500	
Dibenz(a,h)anthracene	0.7736	0.6829	1.000000	0.882800	ng	-12	30	0.0500	
Benzo(g,h,i)perylene	0.8059	0.8132	1.000000	1.009000	ng	1	30	0.0500	
Nitrobenzene-d5	0.2196	0.2363	1.000000	0.958800	ng	-4	30	0.0500	
2-Fluorobiphenyl	1.4448	1.3058	1.000000	0.903800	ng	-10	30	0.0500	
Terphenyl-d14	0.9466	0.8425	1.000000	0.890000	ng	-11	30	0.0500	

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m=manual integration
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CONTINUING CALIBRATION REPORT
Curtis & Tompkins Laboratories

Instid	: MSBNA03	Run Name	:	IDF	: 1.0
Seqnum	: 525305857002	Filename	: vgv02	Injected	: 31-JUL-2005 10:01
Calnum	: 525301480001	Caldate	: 28-JUL-2005	Caltype	:
Standards:	S1213				

Analyte	Avg RF/CF	RF/CF	SpkAmt	QuantAmt	Units	%D	Max %D	Min RF	Flags
1,4-Dioxane	0.4290	0.4671	1.000000	1.089000	ng	9	30	0.0500	m
Naphthalene	0.9464	0.8934	1.000000	0.944000	ng	-6	30	0.0500	
2-Methylnaphthalene	0.6763	0.6234	1.000000	0.921800	ng	-8	30	0.0500	
Acenaphthylene	1.6193	1.7278	1.000000	1.067000	ng	7	30	0.0500	
Acenaphthene	1.0027	1.0141	1.000000	1.011300	ng	1	20	0.0500	
Fluorene	1.1639	1.2191	1.000000	1.047400	ng	5	30	0.0500	
Phenanthrene	0.9206	0.9422	1.000000	1.023500	ng	2	30	0.0500	
Anthracene	0.7853	0.8060	1.000000	1.026400	ng	3	30	0.0500	
Fluoranthene	1.0035	1.0138	1.000000	1.010300	ng	1	20	0.0500	
Pyrene	1.1367	1.1423	1.000000	1.004900	ng	0	30	0.0500	
Benzo(a)anthracene	0.9733	1.0049	1.000000	1.032400	ng	3	30	0.0500	
Chrysene	0.9691	0.9637	1.000000	0.994400	ng	-1	30	0.0500	
Benzo(b)fluoranthene	1.2015	1.1405	1.000000	0.949200	ng	-5	30	0.0500	
Benzo(k)fluoranthene	1.3085	1.1387	1.000000	0.870200	ng	-13	30	0.0500	
Benzo(a)pyrene	0.9802	0.9817	1.000000	1.001600	ng	0	20	0.0500	
Indeno(1,2,3-cd)pyrene	1.1765	1.1446	1.000000	0.972900	ng	-3	30	0.0500	
Dibenz(a,h)anthracene	0.9503	0.9341	1.000000	0.982900	ng	-2	30	0.0500	
Benzo(g,h,i)perylene	1.0639	0.9457	1.000000	0.888900	ng	-11	30	0.0500	
Nitrobenzene-d5	0.2431	0.2920	1.000000	1.201300	ng	20	30	0.0500	
2-Fluorobiphenyl	1.3406	1.3627	1.000000	1.016500	ng	2	30	0.0500	
Terphenyl-d14	1.0279	0.9726	1.000000	0.946200	ng	-5	30	0.0500	

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m=manual integration
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INTERNAL STANDARD SUMMARY
Curtis & Tompkins Laboratories

Sequence Date: 24-JUL-2005
Sequence: 525296126 (vgo)
Instrument ID: MSBNA03

CCV Filename: vgo02
Date Analyzed: 24-JUL-2005
Time Analyzed: 15:45

	IS1 (DCBZ14D4) READING	RT	IS2 (NAPHD8) READING	RT	IS3 (ACEND10) READING	RT	IS4 (PHEND10) READING	RT	IS5 (CHYD12) READING	RT	IS6 (PERYD12) READING	RT
CCV STD	79626	7.08	348801	8.78	179093	11.36	303547	13.59	287365	17.44	298396	19.23
LOWER LIMIT	39813	6.58	174401	8.28	89547	10.86	151774	13.09	143683	16.94	149198	18.73
UPPER LIMIT	159252	7.58	697602	9.28	358186	11.86	607094	14.09	574730	17.94	596792	19.73

TYPE	SAMPLE	#												
CCV		002	79626	7.08	348801	8.78	179093	11.36	303547	13.59	287365	17.44	298396	19.23
BLANK	QC302222	003	73767	7.08	341678	8.78	165714	11.37	287452	13.60	265086	17.45	286943	19.23
LCS	QC302223	004	76583	7.08	363610	8.78	167293	11.36	298549	13.59	268217	17.45	294665	19.23
SAMPLE	180742-012	005	75659	7.08	345314	8.78	166360	11.36	287419	13.60	350321	17.45	326530	19.23
SAMPLE	180742-011	006	75763	7.08	354381	8.78	165478	11.37	285925	13.60	263604	17.45	282466	19.23
SAMPLE	180742-010	007	79747	7.08	365316	8.78	174393	11.37	298753	13.60	275344	17.45	296358	19.23
SAMPLE	180742-009	008	79004	7.08	370058	8.78	172711	11.36	294676	13.59	277910	17.45	291909	19.23
SAMPLE	180742-008	009	78601	7.08	370633	8.78	171523	11.36	295684	13.59	270710	17.45	289943	19.23
MSS	180755-030	010	73238	7.08	338689	8.78	165475	11.36	256987	13.60	211943	17.45	215718	19.24
MS	QC302224	011	72089	7.08	339321	8.78	157351	11.37	241766	13.60	201622	17.45	208902	19.24
MSD	QC302225	012	75429	7.08	359002	8.78	170730	11.36	258298	13.60	201313	17.45	102142*	19.24
SAMPLE	180589-015	013	65390	7.08	313660	8.78	151153	11.36	252746	13.60	213186	17.45	195761	19.23
SAMPLE	180587-026	014	95493	7.08	454909	8.78	227869	11.36	399675	13.59	353297	17.45	335910	19.24
SAMPLE	180589-002	015	83127	7.08	408102	8.78	202974	11.36	374750	13.59	481439	17.45	361531	19.23
MS	QC301869	016	83402	7.08	407038	8.78	206379	11.37	377460	13.60	476800	17.45	355962	19.24
MSD	QC301870	017	84551	7.08	412380	8.78	199472	11.36	374898	13.60	480225	17.45	351991	19.24
SAMPLE	180589-005	018	81824	7.08	411934	8.78	204007	11.36	374282	13.60	485774	17.45	342518	19.24
SAMPLE	180589-011	019	80418	7.08	380214	8.78	194121	11.36	347914	13.60	275587	17.45	222892	19.24
SAMPLE	180667-011	020	81243	7.08	381608	8.78	195058	11.37	356014	13.60	275965	17.45	216052	19.24
SAMPLE	180667-008	021	79549	7.08	376989	8.78	194333	11.36	345430	13.60	284683	17.45	220912	19.24
SAMPLE	180667-002	022	76813	7.08	362783	8.78	187789	11.36	341600	13.60	288436	17.45	201448	19.24
SAMPLE	180667-007	023	78434	7.08	363733	8.78	182742	11.36	342625	13.60	282287	17.45	196985	19.24
SAMPLE	180667-009	024	79805	7.08	372011	8.78	188288	11.36	342830	13.60	278000	17.45	183633	19.24
SAMPLE	180667-012	025	79150	7.08	365421	8.78	188076	11.37	342393	13.60	289449	17.45	171321	19.24

* = Outside QC Limits

INTERNAL STANDARD SUMMARY
Curtis & Tompkins Laboratories

Sequence Date: 31-JUL-2005
Sequence: 525305857 (vgv)
Instrument ID: MSBNA03

CCV Filename: vgv02
Date Analyzed: 31-JUL-2005
Time Analyzed: 10:01

	IS1 (DCBZ14D4) READING	RT	IS2 (NAPHD8) READING	RT	IS3 (ACEND10) READING	RT	IS4 (PHEND10) READING	RT	IS5 (CHYD12) READING	RT	IS6 (PERYD12) READING	RT
CCV STD	53367	6.94	238225	8.62	110237	11.20	200035	13.42	182068	17.29	171945	19.07
LOWER LIMIT	26684	6.44	119113	8.12	55119	10.70	100018	12.92	91034	16.79	85973	18.57
UPPER LIMIT	106734	7.44	476450	9.12	220474	11.70	400070	13.92	364136	17.79	343890	19.57

TYPE	SAMPLE	#	IS1 READING	RT	IS2 READING	RT	IS3 READING	RT	IS4 READING	RT	IS5 READING	RT	IS6 READING	RT
CCV		002	53367	6.94	238225	8.62	110237	11.20	200035	13.42	182068	17.29	171945	19.07
SAMPLE	180755-014	003	51716	6.94	231529	8.62	108414	11.21	162887	13.43	145032	17.30	88836	19.10
SAMPLE	180755-015	004	58666	6.94	267986	8.62	124285	11.21	182088	13.45	167976	17.30	111918	19.09
SAMPLE	180755-028	005	55422	6.94	247649	8.62	118558	11.20	174684	13.43	154832	17.30	93995	19.08
MS	QC302224	006	52990	6.94	247051	8.62	117883	11.20	195904	13.42	164822	17.29	131315	19.08
MSD	QC302225	007	49654	6.94	233883	8.62	110828	11.20	184851	13.42	154254	17.29	89842	19.08
SAMPLE	180755-029	008	52554	6.94	243248	8.62	115191	11.20	186924	13.42	181729	17.29	125016	19.07
SAMPLE	180755-043	009	52869	6.94	241729	8.62	119690	11.20	192881	13.42	149929	17.30	78269*	19.10
SAMPLE	180786-017	010	54257	6.94	265708	8.62	124155	11.20	221091	13.42	196186	17.29	150017	19.07
SAMPLE	180786-009	011	56032	6.94	259124	8.62	123627	11.20	228155	13.42	195072	17.29	165126	19.07
SAMPLE	180786-006	012	52244	6.94	240290	8.62	117371	11.20	216555	13.42	194728	17.29	156635	19.07
SAMPLE	180786-005	013	50646	6.94	240590	8.62	115152	11.20	207140	13.42	185603	17.29	163349	19.07
SAMPLE	180786-004	014	54070	6.94	259377	8.62	119728	11.20	218672	13.42	201390	17.28	161234	19.07
SAMPLE	180589-010	015	53906	6.94	256649	8.62	117799	11.20	213023	13.42	192091	17.29	169889	19.07
SAMPLE	180786-002	016	51296	6.94	250475	8.62	114006	11.20	207042	13.42	173883	17.29	147998	19.07
SAMPLE	180786-001	017	54461	6.94	257717	8.62	121194	11.20	219969	13.42	198567	17.28	157972	19.07
SAMPLE	180786-010	018	50569	6.94	246726	8.62	112479	11.20	201962	13.42	176398	17.29	145918	19.07
SAMPLE	180786-008	019	49525	6.94	238472	8.62	108637	11.20	196543	13.42	160610	17.30	89990	19.09
SAMPLE	180786-007	020	48596	6.94	238114	8.62	109018	11.20	196577	13.42	165788	17.29	93063	19.07

* = Outside QC Limits

SEQUENCE SUMMARY
Curtis & Tompkins Laboratories

Sequence: 525292870 Instrument: MSBNA03 HP GCMS BNA 03 Begun: 22-JUL-2005
Analytical Method: EPA 8270C SOP Version: 8270C_rv8
Analytical Method: EPA 8270C-SIM SOP Version: 8270-SIM_rv0

#	Filename	Type	Samplenum	Batch	Matrix	Analyzed	IDF	IQC	SPK uL	VL	pH	Stds Used	>LR
001	vgm01	TUN	NP NL			22-JUL-2005 09:10	1.0					1	
002	vgm02	CCV				22-JUL-2005 09:40	1.0	1	1			2	
003	vgm03	CCV				22-JUL-2005 10:23	1.0	3	1			3	
004	vgm04	TUN	NP NL			22-JUL-2005 11:20	1.0					1	
005	vgm05	CCV				22-JUL-2005 11:39	1.0	3	1			2	1:DIOXAN=285.366
006	vgm06	ICAL	0.1ug/mL			22-JUL-2005 12:21	1.0					4	
007	vgm07	ICAL	0.2ug/mL			22-JUL-2005 12:53	1.0					5	
008	vgm08	TUN	ICAL			22-JUL-2005 13:24	1.0					3	
009	vgm09	TUN	NP NL			22-JUL-2005 14:25	1.0					1	
010	vgm10	ICAL	0.1ug/mL			22-JUL-2005 14:53	1.0					4	
011	vgm11	ICAL	0.2ug/mL			22-JUL-2005 15:24	1.0					5	
012	vgm12	ICAL	0.5ug/mL			22-JUL-2005 15:55	1.0					3	
013	vgm13	ICAL	1.0ug/mL			22-JUL-2005 16:27	1.0					2	
014	vgm14	ICAL	2.0ug/mL			22-JUL-2005 16:59	1.0					6	
015	vgm15	ICAL	5.0ug/mL			22-JUL-2005 17:31	1.0					7	
016	vgm16	ICAL	10.0ug/mL			22-JUL-2005 18:03	1.0					8	
017	vgm17	ICV	1.0ug/mL			22-JUL-2005 18:35	1.0		1			9	
018	vgm18	TUN	NP NL			22-JUL-2005 21:10	1.0					1	

ICAL | OK

ICV | OK

Stds used: 1=S800 2=S754 3=S757 4=S755 5=S756 6=S758 7=S759 8=S760 9=S797

Analyst: rw Date: 7/22/05

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8→12 MB LCS

SEQUENCE SUMMARY
Curtis & Tompkins Laboratories

Begun: 24-JUL-2005

Sequence: 525296126 Instrument: MSBNA03 HP GCMS BNA 03
Analytical Method: EPA 8270C SOP Version: 8270C_rv8
Analytical Method: EPA 8270C-SIM SOP Version: 8270-SIM_rv0

#	Filename	Type	Samplenum	Batch	Matrix	Analyzed	IDF	PDF	IQC	SPK	uL	Stds Used	>LR
001	vgo01	TUN	DFTPP/PEM			24-JUL-2005 15:26	1.0	1.0				1	
002	vgo02	CCV				24-JUL-2005 15:45	1.0	1.0			1	2	
003	vgo03	BLANK	QC302222	104151	Soil	24-JUL-2005 16:18	1.0	0.0334			1	3	
004	vgo04	LCS	QC302223	104151	Soil	24-JUL-2005 16:50	1.0	0.03281			1	3	
005	vgo05	SAMPLE	180742-012	104151	Soil	24-JUL-2005 17:23	1.0	0.03366			1	3	
006	vgo06	SAMPLE	180742-011	104151	Soil	24-JUL-2005 17:55	1.0	0.03299			1	3	
007	vgo07	SAMPLE	180742-010	104151	Soil	24-JUL-2005 18:28	1.0	0.03352			1	3	
008	vgo08	SAMPLE	180742-009	104151	Soil	24-JUL-2005 19:01	1.0	0.03359			1	3	
009	vgo09	SAMPLE	180742-008	104151	Soil	24-JUL-2005 19:33	1.0	0.0336			1	3	
010	vgo10	MSS	180755-030	104151	Soil	24-JUL-2005 20:05	5.0	0.03327			1	3	
011	vgo11	MS	QC302224	104151	Soil	24-JUL-2005 20:38	5.0	0.03328			1	3	
012	vgo12	MSD	QC302225	104151	Soil	24-JUL-2005 21:11	5.0	0.03315		6	1	3	
013	vgo13	SAMPLE	180589-015	103928	Soil	24-JUL-2005 21:45	5.0	0.03304			1	3	
014	vgo14	SAMPLE	180587-026	103943	Soil	24-JUL-2005 22:18	1.0	0.0335			1	3	
015	vgo15	SAMPLE	180589-002	103928	Soil	24-JUL-2005 22:53	1.0	0.03362			1	3	
016	vgo16	MS	QC301869	104052	Soil	24-JUL-2005 23:27	5.0	0.03281		18	1	3	
017	vgo17	MSD	QC301870	104052	Soil	25-JUL-2005 00:02	5.0	0.03328		18	1	3	
018	vgo18	SAMPLE	180589-005	103928	Soil	25-JUL-2005 00:37	5.0	0.03372		3	1	3	
019	vgo19	SAMPLE	180589-011	103928	Soil	25-JUL-2005 01:11	10.0	0.03388			1	3	
020	vgo20	SAMPLE	180667-011	104052	Soil	25-JUL-2005 01:44	2.0	0.03385			1	3	
021	vgo21	SAMPLE	180667-008	104052	Soil	25-JUL-2005 02:18	3.0	0.03361			1	3	
022	vgo22	SAMPLE	180667-002	104052	Soil	25-JUL-2005 02:54	5.0	0.03286			1	3	
023	vgo23	SAMPLE	180667-007	104052	Soil	25-JUL-2005 03:28	5.0	0.0334	19		1	3 <<t	
024	vgo24	SAMPLE	180667-009	104052	Soil	25-JUL-2005 04:02	5.0	0.03291	19		1	3 <<t	
025	vgo25	SAMPLE	180667-012	104052	Soil	25-JUL-2005 04:36	5.0	0.03346	19		1	3 <<t	
026	vgo26	X	ENDBLANK			25-JUL-2005 05:01	1.0						
027	vgo27	X	ENDBLANK			25-JUL-2005 05:12	1.0						
028	vgo28	X	ENDBLANK			25-JUL-2005 05:22	1.0						

ccv: ok
ICAL: ok
ICV: ok

Stds used: 1=S800 2=S754 3=S835
Flags used: <<t=out of clock

Analyst: _______ Date: 7/25/05

07-25-05

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BNA03 8270-SIM Calibration

SEQUENCE SUMMARY
Curtis & Tompkins Laboratories

Sequence: 525301480 Instrument: MSBNA03 HP GCMS BNA 03 Begun: 28-JUL-2005
Analytical Method: EPA 8270C SOP Version: 8270C_rv8
Analytical Method: EPA 8270C-SIM SOP Version: 8270-SIM_rv0

#	Filename	Type	Samplenum	Batch	Matrix	Analyzed	IDF	IQC	SPK uL	VL	pH	Stds Used	>LR
001	vgs01	TUN	NP NL			28-JUL-2005 08:40	1.0					1	
002	vgs02	ICAL	0.1ug/mL			28-JUL-2005 09:08	1.0					2	
003	vgs03	X	0.2ug/mL			28-JUL-2005 09:43	1.0					3	
004	vgs04	ICAL	0.5ug/mL			28-JUL-2005 10:16	1.0					4	
005	vgs05	ICAL	1.0ug/mL			28-JUL-2005 10:50	1.0					5	
006	vgs06	ICAL	2.0ug/mL			28-JUL-2005 11:25	1.0					6	
007	vgs07	ICAL	5.0ug/mL			28-JUL-2005 11:59	1.0					7	
008	vgs08	ICAL	10.0ug/mL			28-JUL-2005 13:30	1.0					8	
009	vgs09	ICAL	0.2ug/mL			28-JUL-2005 14:03	1.0					9	
010	vgs10	ICV	1.0ug/mL			28-JUL-2005 14:36	1.0		1			10	
011	vgs11	TUN	NP NL			28-JUL-2005 15:10	1.0					1	
012	vgs12	CCV				28-JUL-2005 15:31	1.0		1			6	

*sequence still running

205

ICAL: Ok
ICV:

Stds used: 1=S800 2=S755 3=S1211 4=S1212 5=S1213 6=S1214 7=S1215 8=S1216 9=S756 10=S797

Analyst: ______ Date: 7/28/05
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SEQUENCE SUMMARY
Curtis & Tompkins Laboratories

Sequence: 525305857 Instrument: MSBNA03 HP GCMS BNA 03 Begun: 31-JUL-2005
Analytical Method: EPA 8270C SOP Version: 8270C_rv8
Analytical Method: EPA 8270C-SIM SOP Version: 8270-SIM_rv0

#	Filename	Type	Samplenum	Batch	Matrix	Analyzed	IDF	PDF	IQC	SPK	uL	Stds Used	>LR
001	vgv01	TUN	NP NL			31-JUL-2005 09:37	1.0	1.0				1	
002	vgv02	CCV				31-JUL-2005 10:01	1.0	1.0			1	2	
003	vgv03	SAMPLE	180755-014	104151	Soil	31-JUL-2005 10:34	1.0	0.03343			1	3	
004	vgv04	SAMPLE	180755-015	104151	Soil	31-JUL-2005 11:08	1.0	0.03374			1	3	
005	vgv05	SAMPLE	180755-028	104151	Soil	31-JUL-2005 11:42	1.0	0.03341			1	3	
006	vgv06	MS	QC302224	104151	Soil	31-JUL-2005 12:15	5.0	0.03328			1	3	
007	vgv07	MSD	QC302225	104151	Soil	31-JUL-2005 12:48	5.0	0.03315		2	1	3	
008	vgv08	SAMPLE	180755-029	104151	Soil	31-JUL-2005 13:21	10.0	0.03349			1	3	
009	vgv09	SAMPLE	180755-043	104151	Soil	31-JUL-2005 13:55	5.0	0.03331			1	3	
010	vgv10	SAMPLE	180786-017	104319	Soil	31-JUL-2005 14:28	1.0	0.03328			1	3	
011	vgv11	SAMPLE	180786-009	104319	Soil	31-JUL-2005 15:01	1.0	0.03347			1	3	
012	vgv12	SAMPLE	180786-006	104319	Soil	31-JUL-2005 15:36	1.0	0.03369			1	3	
013	vgv13	SAMPLE	180786-005	104319	Soil	31-JUL-2005 16:08	1.0	0.03309			1	3	
014	vgv14	SAMPLE	180786-004	104319	Soil	31-JUL-2005 16:40	1.0	0.03291			1	3	
015	vgv15	SAMPLE	180589-010	103928	Soil	31-JUL-2005 17:13	1.0	0.03386	1		1	3	1:PYR=12.4905
016	vgv16	SAMPLE	180786-002	104319	Soil	31-JUL-2005 17:46	1.0	0.0335			1	3	
017	vgv17	SAMPLE	180786-001	104319	Soil	31-JUL-2005 18:20	1.0	0.03364			1	3	
018	vgv18	SAMPLE	180786-010	104319	Soil	31-JUL-2005 18:53	1.0	0.03288	3		1	3	3:FLA=28.3212
019	vgv19	SAMPLE	180786-008	104319	Soil	31-JUL-2005 19:27	10.0	0.03382	9	1	1	3	9:PYR=33.5536
020	vgv20	SAMPLE	180786-007	104319	Soil	31-JUL-2005 20:00	10.0	0.03349			1	3	

ccv: ok
ical: ok
icv: ok

Stds used: 1=S800 2=S1213 3=S835

Analyst: Date: 8/1/05

Curtis & Tompkins Laboratories **Sample Preparation Summary** 22-JUL-2005 12:29

Batch Number : 104151
Date Extracted: 22-JUL-2005
Extracted by : Sheila H. Dodson
Prep Method : 3550B

Analysis : N/A
Bgroup : SIM
Units : g
Clean-up :

Spike #1 ID : S1101A
Spike #2 ID : S849C
Spike #3 ID :
SOP Version :

Sample	Type	Client	Matrix	Init W/V	Units	Final Vol	Prep D.F.	Clean D.F.	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Analyses	Clean Method	Comments
180742-008		Mactec, Inc.	Soil	29.76	g	1	0.033602	1		1	0		8270-SIM		
180742-009		Mactec, Inc.	Soil	29.77	g	1	0.033591	1		1	0		8270-SIM		
180742-010		Mactec, Inc.	Soil	29.83	g	1	0.033523	1		1	0		8270-SIM		
180742-011		Mactec, Inc.	Soil	30.31	g	1	0.032992	1		1	0		8270-SIM		
180742-012		Mactec, Inc.	Soil	29.71	g	1	0.033659	1		1	0		8270-SIM		
180755-013		Treadwell & Rollo	Soil	29.62	g	1	0.033761	1		1	0		8270-SIM		
180755-014		Treadwell & Rollo	Soil	29.91	g	1	0.033434	1		1	0		8270-SIM		
180755-015		Treadwell & Rollo	Soil	29.64	g	1	0.033738	1		1	0		8270-SIM		
180755-028		Treadwell & Rollo	Soil	29.93	g	1	0.033411	1		1	0		8270-SIM		
180755-029		Treadwell & Rollo	Soil	29.86	g	1	0.033490	1		1	0		8270-SIM		
180755-030		Treadwell & Rollo	Soil	30.06	g	1	0.033267	1		1	0		8270-SIM		MSS
180755-043		Treadwell & Rollo	Soil	30.02	g	1	0.033311	1		1	0		8270-SIM		
180755-044		Treadwell & Rollo	Soil	29.99	g	1	0.033344	1		1	0		8270-SIM		
180755-045		Treadwell & Rollo	Soil	29.9	g	1	0.033445	1		1	0		8270-SIM		
180755-050		Treadwell & Rollo	Soil	30.26	g	1	0.033047	1		1	0		8270-SIM		
QC302222	BLANK		Soil	29.94	g	1	0.033400	1		1	0		SIM		
QC302223	LCS		Soil	30.48	g	1	0.032808	1		1	1		SIM		
QC302224	MS	of 180755-030	Soil	30.05	g	1	0.033278	1		1	1		SIM		
QC302225	MSD	of 180755-030	Soil	30.17	g	1	0.033146	1		1	1		SIM		

Prep Chemist: [signature] Reviewed By: Jennifer [signature] Date: 7/24/05

Relinquished By: [signature] Received By: [signature] Date: 7/25/05

Curtis & Tompkins, Ltd. **8270 SOIL PREP LOG**

LIMS Batch No: 104151
LIMS Analysis: 8270-SIM
Extracted by: SHD
Date Extracted: 7/22/05

Extraction Method:
- ☑ EPA 3550b Sonication
- ☐ EPA 3540c Soxhlet
- ☐ Other ________

Cleanup Method (if necessary):
- ☐ EPA 3640a GPC
- ☐ EPA 3630c Silica Gel
- ☐ Other ________

Sample ID	Weight of Sample (g)	Final Volume (mL)	Cleanup (x if needed)	Comments
180742.008	29.76	1.0		
.009	29.77			
.010	29.83			
.011	30.31			
.012	29.71			
180755.013	29.62			
.014	29.91			
.015	29.64			
.~~016~~ 28 SHD 7/22	29.93			
.029	29.86			
.030	30.06			MSS
.043	30.02			
.044	29.99			
.045	29.90			
.050	30.26			
MB QC 302222	29.94			
LCS 23	30.48			
MS 24	30.05			
MSD 25	30.17			

JED 7/24/05

	Mfg & Lot # / LIMS # / Time	Date/Initials
Sand weighed out for QC samples	EM	JED GISHD 7/22/05
Samples were dried with baked, CH_2Cl_2-rinsed ~~Granular~~ powder Na_2SO_4	EM45042	
1.0 mL of surrogate solution was added to all samples	S1101A	
1.0 mL of matrix spiking solution was added to all spikes	S849C	
≥100mL 1:1 CH_2Cl_2:Acetone was added to all: CH_2Cl_2	EM45189	
Acetone	EM44281	
Samples were: ☑ sonicated 3 times ☐ soxhlet extractors on at:	✓	
soxhlets off at:	N/A	
Extracts filtered through baked, CH_2Cl_2-rinsed powdered Na_2SO_4	EM45042	
Concentrated: ☑ to volumes as noted above ☐ to clean-up volume	✓	
Clean-up (if necessary): ☐ GPC (see GPC run log) ☐ Silica Gel	N/A	
Concentrated to final volumes as noted above	✓	

[signature] 7/22/05
Extraction Chemist / Date

Continued from page 208 ______
Continued on page ______

Jennifer Dell 7/24/05
Reviewed by / Date

Project Soil Aliquot BK2135

Continued from Page

Sample ID	Weight(g)	Analysis	Comments
180742-002A	49.64	TEH	
-003	49.52		
-004	49.99		
-005	50.09		
-007	49.62		
-008	50.02		
-009	50.29		
-010	50.04		
-011	49.84		
-012	50.23		
180742-008A	29.76	8270SIM	
-009	29.77		
-010	29.83		
-011	30.31		
-012	29.71		

Continued on Page

Michael Chan 7/20/05

Signed Date

Read and Understood By

Signed Date

Sample ID	Weight (g)	Analysis	Comments
180692-001A	30.20	8310	MSS
MB	29.71		
LCS	30.22		EM44258
MS	30.15		
MSD	30.34		
180755-013	29.62		Comp of 180755-001A, 002A, 003A, 004A
-014	29.91		-005A, 006A, 007A, 008A
-015	29.84		-009A, -010A, 011A, 012A
-028	29.93		-016A, -017A, 018A, 019A
-029	29.86		-020A, 021A, 022A, 023A
-030	30.05		MSS Comp of 180755-024A, 025A, 026A, 027A
-043	30.02		Comp of 180755-031A, 032A, 033A, 034A
-044	29.99		-035A, 036A, 037A, 038A
-045	29.90		-039A, 040A, 041A, 042A
-050	30.26		-046A, 047A, 048A, 049A
MB	29.44		EM44258
LCS	30.48		
MS	30.05		180755-030A
MSD	30.17		

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Read and Understood By

[signature] 7/22/05

Signed Date Signed Date

MOISTURE

Curtis & Tompkins, Ltd.

Moisture

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	METHOD
Project#:	55213 00311	Analysis:	ASTM D2216/CLP
Analyte:	Moisture, Percent	Batch#:	104109
Matrix:	Soil	Received:	07/21/05
Units:	%	Analyzed:	07/21/05
Diln Fac:	1.000		

Field ID	Lab ID	Result	RL	Sampled
LF6EX134(2.5)	180742-001	9	1	07/20/05
LF6EX135(24.0)	180742-002	16	1	07/20/05
DUP(072005)-1	180742-003	17	1	07/20/05
LF6EX136(11.0)	180742-004	17	1	07/20/05
DUP(072005)-2	180742-005	16	1	07/20/05
LF6EX137(4.0)	180742-006	11	1	07/21/05
LF6EX138(3.0)	180742-007	13	1	07/21/05
LF6EX139(7.5)	180742-008	11	1	07/21/05
LF6EX140(5.0)	180742-009	10	1	07/21/05
LF6EX141(8.0)	180742-010	12	1	07/21/05
LF6EX142(15.0)	180742-011	13	1	07/21/05
DUP(072105)	180742-012	11	1	07/21/05

RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Moisture

Lab #:	180742	Location:	Presidio Site 6A
Client:	Mactec, Inc.	Prep:	METHOD
Project#:	55213 00311	Analysis:	ASTM D2216/CLP
Analyte:	Moisture, Percent	Units:	%
Field ID:	LF6SP106	Diln Fac:	1.000
Type:	SDUP	Batch#:	104109
MSS Lab ID:	180615-003	Sampled:	07/15/05
Lab ID:	QC302046	Received:	07/15/05
Matrix:	Soil	Analyzed:	07/21/05

MSS Result	Result	RL	RPD	Lim
17.42	16.87	1.000	3	15

RL= Reporting Limit
RPD= Relative Percent Difference

55.0

Percent Moisture Summary Report

Batch: 104109
Date: 07/21/05
Method: CLP SOW 390
Analyst: RSM

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
180615-003	15.0991	22.1865	20.9516	83	17
180615-004	15.0885	22.6359	21.5591	86	14
180692-001	15.4971	22.4800	21.1246	81	19
180692-002	15.3639	22.3038	21.0981	83	17
180692-003	14.7514	22.2158	20.9442	83	17
180692-004	15.4502	22.4831	21.1303	81	19
180692-005	15.4557	22.1429	20.5984	77	23
180692-006	15.2493	22.2305	20.9722	82	18
180742-001	15.0322	22.0501	21.3965	91	9
180742-002	15.5402	22.1007	21.0757	84	16
180742-003	15.2882	22.6493	21.4249	83	17
180742-004	15.4191	22.0182	20.9091	83	17
180742-005	15.2285	22.3272	21.1560	84	16
180742-006	15.2626	22.0791	21.3414	89	11
180742-007	15.3402	22.4018	21.4849	87	13
180742-008	15.1541	22.8068	21.9458	89	11
180742-009	14.6774	22.2043	21.4308	90	10
180742-010	15.2396	22.2418	21.4167	88	12
180742-011	15.5831	22.3158	21.4502	87	13
180742-012	15.2021	22.2578	21.4672	89	11
QC302046	15.2570	22.2380	21.0602	83	17
of 180615-003			RPD:	0.7%	3.2%

Curtis & Tompkins Laboratories Sample Batch Report

Batch Number: 104109
Date Started: 21-JUL-2005
Batched by : Rodellio S. Manuel

Analysis : MOISTURE
Bgroup : N/A
Department : Metals

Sample	Type		Client	Matrix	Analyses	Due Date
180615-003			Mactec, Inc.	Soil	MOISTURE	22-JUL-2005
180615-004			Mactec, Inc.	Soil	MOISTURE	22-JUL-2005
180692-001			URS Corporation	Soil	MOISTURE	25-JUL-2005
180692-002			URS Corporation	Soil	MOISTURE	25-JUL-2005
180692-003			URS Corporation	Soil	MOISTURE	25-JUL-2005
180692-004			URS Corporation	Soil	MOISTURE	25-JUL-2005
180692-005			URS Corporation	Soil	MOISTURE	25-JUL-2005
180692-006			URS Corporation	Soil	MOISTURE	25-JUL-2005
180742-001			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-002			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-003			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-004			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-005			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-006			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-007			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-008			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-009			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-010			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-011			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
180742-012			Mactec, Inc.	Soil	MOISTURE	25-JUL-2005
QC302046	SDUP	of 180615-003		Soil	MOISTURE	

PROJECT MOISTURE

Notebook No. 2162

Continued From Page ∅

7-21-05

104109

Sample		B.L.Dish #	Tare wt.	Init. wt.	Fin. wt.	Comments
Blank		24	15.3314	—	15.3314	
180615-	3	33	15.0991	22.1865	20.9516	
DUP	3	DD	15.2570	22.2380	21.0602	
	4	141	15.0885	22.6359	21.5591	
180742-	1	16	15.0322	22.0501	21.3965	
	2	32	15.5402	22.1007	21.0757	
	3	46	15.2882	22.6493	21.4249	
	4	21	15.4191	22.0182	20.9091	
	5	M2	15.2285	22.0272	21.1560	
	6	80	15.2626	22.0791	21.3414	
	7	31	15.3402	22.4016	21.4649	
	8	7	15.1541	22.8068	21.9458	
	9	T	14.6774	22.2043	21.4308	
	10	26	15.2996	22.2418	21.4167	
	11	101	15.5831	22.3158	21.4502	
	12	73	15.2021	22.2578	21.4672	
180692-	1	38	15.4971	22.4802	21.1246	
	2	8	15.3639	22.3038	21.0981	
	3	11	14.7514	22.2158	20.9442	
	4	34	15.4502	22.4831	21.1303	
	5	106	15.4557	22.1429	20.5984	
	6	44	15.2493	22.2305	20.9722	

OVEN TEMP: 103°C
TIME IN: 3:10 p.m.
TIME OUT: 8:20 A.M. ON: 7-22-05

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R. M[illegible] 7/21/05 Signed Date

Read and Understood By [illegible] 7/22/[illegible] Signed Date

CURTIS & TOMPKINS

QA/QC
TEMPERATURE MONITOR

MONTH/YEAR 7-6-05

°C	DATE	INITIAL		°C	DATE	INITIAL
105°C	7-6-05	RSM				
103°C	7-7-05	RSM				
105°C	7-8-05	RSM				
103°C	7-9-05	ARM				
103°C	7-11-05	RSM				
103°C	7-12-05	RSM				
103°C	~~7-13-05~~	RSM				
103°C	7-14-05	RSM				
103°C	7-15-05	RSM				
102°C	7-16-05	ARM				
103°C	7-18-05	RSM				
100°C	7-19-05	RSM				
104°C	7-20-05	RSM				
103°C	7-21-05	RSM				
105°C	7-22-05	RSM				

000071

PROJECT ________

Continued From Page ________

DATE	0.2000	1.0000	10.0000	50.0000	Init.	Std #
6-13-05	0.2000	1.0002	10.0000	50.0002	ARM	35298
6-14-05	0.2001	1.0001	10.0000	50.0001	RSM	35296
6-15-05	0.2000	1.0000	10.0001	50.0002	RSM	35298
6-16-05	0.2000	1.0001	10.0001	50.0003	RSM	35298
6-17-05	0.2001	1.0000	10.0000	50.0002	RSM	35298
6-20-05	0.2000	1.0001	10.0001	50.0002	RSM	35298
6-21-05	0.2001	1.0000	10.0001	50.0003	RSM	35298
6-22-05	0.2000	1.0001	10.0000	50.0002	RSM	35298
6-23-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
6-24-05	0.2000	1.0000	10.0001	50.0003	RSM	35298
6-27-05	0.2000	1.0001	10.0000	50.0003	RSM	35298
6-28-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
6-29-05	0.2000	1.0000	10.0001	50.0001	RSM	35298
6-30-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
7-1-05	0.2000	1.0001	10.0000	50.0003	RSM	35298
7-5-05	0.2001	1.0000	10.0001	50.0003	RSM	35298
7-6-05	0.2000	1.0000	10.0001	50.0001	RSM	35298
7-7-05	0.2000	1.0001	10.0000	50.0002	RSM	35298
7-8-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
7-9-05	0.2001	1.0001	10.0001	50.0002	ARM	35298
7-11-05	0.2000	1.0000	10.0001	50.0002	RSM	35298
7-12-05	0.2001	1.0001	10.0001	50.0003	RSM	35298
7-13-05	0.2001	1.0000	10.0000	50.0002	RSM	35298
7-14-05	0.2001	1.0001	10.0000	50.0002	RSM	35298
7-15-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
7-16-05	0.2001	1.0001	10.0001	50.0001	ARM	35298
7-18-05	0.2001	1.0000	10.0001	50.0002	RSM	35298
7-19-05	0.2000	1.0001	10.0001	50.0002	RSM	35298
7-20-05	0.2001	1.0000	10.0001	50.0001	RSM	35298
7-21-05	0.2001	1.0001	10.0000	50.0003	RSM	35298
7-22-05	0.2000	1.0001	10.0001	50.0002	RSM	35298

Continued on Page

Read and Understood By

[illegible] Signed   6-13-08 Date   275   Signed   Date

1

APPENDIX D

WASTE WATER DISCHARGE PERMIT

THE PRESIDIO TRUST

1750 Lincoln Boulevard
San Francisco, California 94129-0052
415/561-5082 fax 561-2132 rseelbach@presidiotrust.gov

FACSIMILE TRANSMITTAL SHEET

TO: Gary Lieberman	FROM: Ryan Seelbach
ORGANIZATION: Mactec	DATE: December 13, 2005
FAX NUMBER: 707.793.3900	TOTAL NO. OF PAGES INCLUDING COVER: 14
PHONE NUMBER:	
RE: Industrial User Class II WW Permit	

θ URGENT θ FOR REVIEW θ PLEASE COMMENT θ PLEASE REPLY θ PLEASE RECYCLE

NOTES/COMMENTS:
Gary – Odd pages are coming next.

Thanks, Ryan - 415.561.5082

Confidential Communication

This facsimile transmission is intended only for the use of the recipient(s) named above and may contain information that is privileged and confidential. Please forward it directly to the addressee in a sealed confidential envelope. If you are not a named recipient, any dissemination, distribution or copying of information included here is strictly prohibited. If you received this facsimile in error, please notify our office immediately by telephone (collect) and return the original message to the Presidio Trust via the U.S. Postal Service at our expense. Thank you

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
Bureau of Environmental Regulation and Management
3801 THIRD STREET, SUITE 600, SAN FRANCISCO, CA 94124 • Tel. (415) 695-7310 • Fax (415) 695-7388

SFPUC
WATER
HETCH HETCHY
WATER & POWER
CLEAN WATER

GAVIN NEWSOM
MAYOR

E. DENNIS NORMANDY
PRESIDENT

RICHARD SKLAR
VICE PRESIDENT

ANN MOLLER CAEN
ADAM WERBACH
RYAN L. BROOKS

SUSAN LEAL
GENERAL MANAGER

February 7, 2005

SUBJECT: Industrial User Class II Wastewater Permit

Dear Permittee:

Your application for an industrial wastewater discharge permit has been reviewed and processed in accordance with Section 125 of Chapter X (Public Works Code) of Part II of the San Francisco Municipal Code, Article 4.1 (hereinafter referred to as "Article 4.1").

The enclosed Industrial User Class II Wastewater Permit covers all wastewater discharges from your facility into the City and County of San Francisco's (City's) sewerage system. If you wish to appeal or challenge any conditions imposed in this permit, an application for a variance from the strict application of the requirements of Article 4.1 must be filed. However, according to the provisions of Section 128 of Article 4.1, the General Manager may grant variances only when such action is consistent with Article 4.1's general purpose and intent, and the general and specific rules contained in that ordinance.

If you dispose of process wastewater, spent processing solutions, cartridges, filters, residues, sludges or chemicals by offsite hauling, please note the record-keeping requirements specified in Part II-I of the permit.

If you have any questions about the permit requirements, please contact Stephen Todd at (415) 695-7368.

Very truly yours,

Tommy Lee, Division Engineer
Environmental Regulation
and Management

Enclosure

SFPUC

SAN FRANCISCO PUBLIC UTILITIES COMMISSION
Bureau of Environmental Regulation and Management

3801 THIRD STREET, SUITE 600, SAN FRANCISCO, CA 94124 • Tel. (415) 695-7310 • Fax (415) 695-7388

WATER
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GAVIN NEWSOM
MAYOR

E. DENNIS NORMANDY
PRESIDENT

RICHARD SKLAR
VICE PRESIDENT

ANN MOLLER CAEN
ADAM WERBACH
RYAN L. BROOKS

SUSAN LEAL
GENERAL MANAGER

PERMIT NO. 05-0246

INDUSTRIAL USER CLASS II WASTEWATER PERMIT

<u>Discharger:</u> Presidio Water Treatment Plant
1773 Gibson Rd.
Presidio of San Francisco, CA 94129

<u>SIC/ID:</u> 4941/02008

Pursuant to the provisions of Sections 120, 124 and 125 of Chapter X (Public Works Code) of Part II of the San Francisco Municipal Code, Article 4.1 (hereinafter referred to as "Article 4.1"), it is hereby ordered that the above industrial user/permittee is authorized to discharge wastewater, from the indicated business address, into the City and County of San Francisco's (City's) sewerage system, provided that such wastewater discharges are performed through the facility's approved side sewer(s), and are in accordance with the conditions set forth in this **Class II Wastewater Permit**.

Compliance with this permit does not relieve the permittee of its obligation to comply with any or all applicable pretreatment regulations, standards or requirements under local, state and federal laws, including any such regulations, standards, requirements, or laws which may become effective during the term of this permit. Noncompliance with any condition of this permit shall constitute a violation of Article 4.1.

Effective date of permit:	<u>February 7, 2005</u>
Re-application date:	<u>November 6, 2009</u>
Expiration date of permit:	<u>February 6, 2010</u>

By:
Steven C. Medbery, Manager
Environmental Regulation
and Management

Date: <u>February 7, 2005</u>

Part I - WASTEWATER EFFLUENT LIMITATIONS AND PROHIBITIONS

A. During the period of February 7, 2005 to February 6, 2010, the permittee is authorized to discharge all wastewater through the approved side sewer(s) from the facility.

B. During the effective period of this permit, any sample representative of the permittee's **wastewater discharges to the side sewer(s)** shall not at any time exceed the following numerical limitations, which are contained in Section 123 of Article 4.1:

1. Based upon any grab sample[1] of the permittee's wastewater:

Pollutant parameter	Limit
pH	6.0 min.; 9.5 max.
Dissolved Sulfides	0.5 mg/L
Temperature (except where higher temperatures are required by law)	125°F (52°C)
Hydrocarbon Oil and Grease	100 mg/L

2. Based upon grab samples of the permittee's wastewater, flow-weighted over a production week[2]:

Pollutant parameter	Limit
Total Recoverable Oil and Grease	300 mg/L

C. During the effective period of this permit, any sample representative of the permittee's **wastewater discharges to the side sewer(s)** shall not exceed the following numerical limits, which are contained in the City's Department of Public Works (DPW) Order No. 158170 (1991), which is incorporated by reference in this permit:

1. Based upon 24-hour composite sampling[3]:

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[1] *A **"grab sample"** means an individual sample of wastewater collected over a period of time not exceeding 15 minutes, as defined in federal regulations at 40 CFR Part 403.7(d)(2)(iv)(1990).*

[2] *A **"production week"** means the typical number of days in a calendar week when wastewater is discharged from routine operation and/or cleanup of the permittee's facility.*

2. The permittee is authorized to use radioactive materials by the Nuclear Regulatory Commission[5] or other governmental agency empowered to regulate the use of radioactive materials; and

3. The radioactive material is discharged in strict conformity with all Nuclear Regulatory Commission or other governmental agency requirements.

E. The permittee shall not discharge, deposit, throw, cause, allow or permit to be discharged, deposited or thrown into the City's sewerage system[6], any substance of any kind whatever, including oxygen demanding pollutants, that may or will in any manner cause "interference"[7] or "pass through"[8], obstruct or damage the sewerage system, cause a nuisance, interfere with the proper operation, repair or maintenance of the sewerage system, interfere with the proper operation, repair or maintenance of a reclaimed water production or distribution facility, create difficulty for any workers to repair or maintain any part of the sewerage system, or directly or indirectly cause a violation of the City's federal or state sewage discharge permits or any other requirement applicable to the City. Such substances include, but are not limited to the following:

1. Ashes, cinders, sand, gravel, dirt, bark, leaves, grass cuttings and straw, metals, glass, ceramics and plastics, or any other solid or viscous substance capable of causing obstruction to the flow in sewers, or that will not be carried freely under the flow conditions normally prevailing in the City's sewerage system;

2. Any flammable or explosive substances;

3. Any corrosive substances (particularly discharges with pH lower than 5.0), which will cause structural damage to the City's sewerage system;

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[5] *The "**Nuclear Regulatory Commission**" is an agency of the federal government.*

[6] *The "**sewerage system**" means all public facilities for collecting, transporting, treating, and disposing of stormwater and pollutants in wastewater. The sewerage system includes facilities owned and operated by public entities other than the City, where such facilities direct wastewater into the sewerage system and are subject to the jurisdiction of the City as defined by law, contract or interjurisdictional agreement.*

[7] *"**Interference**" means an inhibition or disruption of the sewerage system, treatment processes or operations, or sludge processes, including the use or disposal of sludge, which causes or threatens to cause a violation of any requirement of the City's permits to operate sewage treatment facilities as defined by state or federal laws and regulations. Violations include, but are not limited to, an increase in the magnitude or duration of a violation and the prohibition of City use or disposal of sludge.*

[8] *"**Pass through**" means a discharge which enters receiving waters through the sewerage system in quantities or concentrations which alone, or in combination with a discharge or discharges from other sources, causes or threatens to cause a violation of the City's NPDES permits, including an increase in the magnitude or duration of a violation.*

provisions of applicable City laws. The General Manager may require the permittee to install and maintain meters, at the permittee's expense, to measure the volume of the discharge.

I. The permittee shall not discharge wastewater associated with groundwater cleanup or remediation plans without first obtaining a permit. An application for a permit pursuant to this paragraph shall be submitted to the General Manager no later than 45 days prior to the proposed commencement of the discharge. A permit may be issued only if an effective pretreatment system on the process stream is maintained and operated. Each permit for such discharge shall contain appropriate discharge standards based on Article 4.1 and reports or data provided by the permittee, as well as any other appropriate requirements that must be achieved at the time the discharge commences. Such discharges shall be subject to payment of sewer service charges in accordance with the provisions of applicable City laws. The General Manager may require the permittee to install and maintain meters, at the permittee's expense, to measure the volume of the discharge. The General Manager may require that such permittees shall indemnify and hold harmless the City from any and all costs, claims, damages, fines, remediation costs, losses and other expenses arising from the discharge into the sewerage system.

J. The permittee may discharge wastewater associated with asbestos abatement operations without a permit, provided that the wastewater has been pretreated through a system that provides for removal of waterborne asbestos.

K. In addition to the provisions of Article 4.1, all discharges by the permittee into the City's sewerage system shall comply with all requirements set forth in federal categorical pretreatment standards, applicable state orders and water quality control regulations, sewage discharge permits and orders issued to the City by federal and state agencies, federal and state pretreatment approval conditions, local discharge limitations and regulations promulgated by the General Manager and the City, including any such regulations, limitations, orders, permits, standards, requirements, or laws which may become effective during the term of this permit.

2. Hazardous waste manifests or other documentation for process wastewater, spent processing solutions, cartridges, filters, residues, sludges or chemicals hauled offsite; and

3. A record of the type and quantity of process wastewater, spent processing solutions, cartridges, filters, residues, sludges or chemicals generated at the facility.

E. The permittee shall notify the General Manager, **within 24 hours**, of any violation detected during self-monitoring, of an applicable effluent limitation. Upon the detection of any such violation, the permittee shall re-sample and submit both sets of analytical results within 30 days of the initial detection.

F. Where the permittee conducts self-monitoring or is given split wastewater samples by the City, copies of the analytical results shall be submitted to the General Manager **within 30 days** of the completion of the sampling episode.

G. The permittee shall notify the General Manager at least **30 days prior** to the introduction of new wastewater discharges or pollutants, or any substantial change in volume (i.e. 25 percent or greater variance from the monthly average flow) or characteristics of the wastewater being introduced into the sewerage system, from its industrial activities. The permittee shall certify that the change will not result in noncompliance with the requirements of Part I above. The General Manager may require the issuance of an amended permit before the commencement of such altered discharge, or, in the case of termination of operations, details regarding closure operations.

H. The permittee shall notify the General Manager at least **30 days prior** to the termination of operations. The notification shall include a facility closure and maintenance report, which describes the procedures to be implemented (e.g. disposal of processing baths) to prevent discharges in noncompliance with the requirements of Part I above.

I. All reports (**which must include the certification statement contained in Part IV-N**) and correspondence to the General Manager shall be submitted to the following address:

Mr. Steven C. Medbery, Manager
SFPUC-BERM
Bayview Plaza
3801 - 3rd Street, Suite 600
San Francisco, CA 94124

E. Operation and Maintenance of Pollution Controls

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes, but is not limited to: effective performance, adequate funding, adequate operator training and staffing, adequate back-up or auxiliary equipment, and adequate laboratory and process controls, including appropriate quality assurance procedures. The permittee shall maintain a record of such servicing for inspection by authorized City inspectors.

F. Bypass of Treatment Facilities

1. Bypass[13] is prohibited unless it is unavoidable to prevent loss of life, personal injury, or severe property damage, and no feasible alternatives (such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime) exist.

2. The permittee may allow bypass to occur provided it does not cause effluent limitations to be exceeded, but only if it is for essential maintenance, to ensure efficient facility operations.

3. Notification of bypass:

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, at least 10 days before the date of the bypass, to the General Manager.

   b. Unanticipated bypass. The permittee shall notify the General Manager within 24 hours of becoming aware of the bypass. This 24-hour notice must be followed within 5 days by a written description of the bypass, its cause, its duration (or, if it has not been corrected, how long it is expected to continue), and what has been done to rectify the problem.

G. Operating Upsets

Any upset[14] experienced by the permittee shall be reported to the General Manager within 24 hours of becoming aware of the upset. A formal written report shall be submitted to the General Manager within 5 days. The report shall include:

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[13] *A "bypass", as defined in 40 CFR Part 403.17, means the intentional diversion of wastestreams from any portion of the permittee's treatment facility.*

[14] *An "upset", as defined in 40 CFR Part 403.16 (a), means an exceptional incident in which there is unintentional and temporary noncompliance with categorical pretreatment standards because of factors beyond the reasonable control*

3. All steps taken to reduce, eliminate, and/or prevent recurrence of such a discharge, spill, upset or slug loading.

Such notification and report shall not relieve the permittee of liability for any expenses, including but not limited to, costs for countermeasures, loss or damage to the sewerage system, liability for fines imposed upon the City because of such occurrences, liability for fines or damages because of such occurrences, or for any damages incurred by a third party.

I. Proper Disposal of Sludges, Spent Chemicals etc.

The disposal of sludges, spent chemicals and hazardous wastes generated by the permittee shall be done in accordance with Section 405 of the Clean Water Act, Subtitles C and D of the Resource Conservation and Recovery Act, and Title 22 of the California Code of Regulations.

J. Hazardous Materials/Waste Storage

The permittee shall store all hazardous materials and hazardous waste within a diked or bermed area, or by using some other method of secondary containment, to prevent spills from entering the sewerage system.

K. Hazardous Waste Discharge

The permittee shall notify the General Manager, the United States Environmental Protection Agency (EPA) Regional Waste Management Division Director, and the California State hazardous waste authorities, in writing, of any discharge into the City's sewerage system of a substance, which, if otherwise disposed of, would be a hazardous waste under federal regulation at 40 CFR Part 261. (See Appendix A, "Hazardous Waste Discharge Response Addresses & Telephone Numbers".)

In the case of any notification made under this paragraph, the permittee shall certify that it has a hazardous waste management/waste minimization program in place, for reducing the volume and toxicity of hazardous wastes generated, to the degree that the permittee has determined to be economically practical.
When the permittee generates a hazardous waste discharge as cited above, it shall report the following:

1. The name of the hazardous waste as set forth in 40 CFR Part 261;

2. The EPA hazardous waste number; and

3. The type of discharge (continuous, batch or other).

N. Signatory Requirements

All applications, reports, or information submitted to the General Manager by the permittee **must** contain the following certification statement and **must** be signed by an authorized representative as described below:

> **"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."**

1. By a responsible corporate officer, if the permittee submitting the reports is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

   a. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

   b. The manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. By a general partner or proprietor if the permittee submitting the reports is a partnership or sole proprietorship respectively.

3. By a duly authorized representative of the individual designated in paragraph 1. or 2. of this section if:

   a. The authorization is made in writing by the individual described in paragraph 1. or 2.;

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the industrial discharge originates, such as the position of plant manager, operator of a well, or well field superintendent, or a position of equivalent

P. Retention of Records

Copies of any reports that must be submitted to the General Manager by the permittee pursuant to Part III above, shall be retained by the permittee for a minimum of 5 years and shall be made available for inspection and copying by the General Manager or any state or federal agency. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or the operation of the City's pretreatment program, or when requested by any state or federal agency.

Q. Charges for Sewerage System Impairment

The permittee shall reimburse the City for extraordinary costs, in addition to the applicable sewer service charge, for treatment, pumping, maintenance of the sewerage system, administration, incidental expenses, inspection and monitoring, and payment of penalties imposed on the City by enforcement agencies, caused by the specific characteristics of any discharge from the permittee's premises into the sewerage system. If the discharge of an industrial waste from the permittee's premises causes an obstruction, damage or other impairment to the sewerage system, the permittee shall pay to the City an amount equal to the costs, penalties and other incidental fees and expenses.

R. Permit Termination

This permit may be terminated, revoked or suspended for reasons including, but not limited to:

1. Falsifying self-monitoring reports;
2. Tampering with monitoring equipment;
3. Refusing to allow timely access to the permittee's facility premises and records;
4. Failure to meet effluent limitations, or the requirements of Article 4.1 and all applicable City, state and federal laws;
5. A discharge or a threatened discharge that may present a hazard to the public health, safety, welfare, natural environment, or sewerage system;
6. Failure to pay fines;
7. Failure to pay sewer service charges; and
8. Failure to meet compliance schedules.

8. Revision of or a grant of variance from such categorical standards pursuant to 40 CFR Part 403.13 of the General Pretreatment Regulations;

9. Typographical or other errors in the permit;

10. Transfer of ownership and/or operation of the permittee's facility to a new owner/operator; and

11. Upon request of the permittee, provided such request does not create a violation of any applicable requirements, standards, laws, or rules and regulations.

The filing of a request by the permittee for a permit modification or re-opening, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

U. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local regulations.

V. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this permit.

W. Penalties

1. Criminal Penalties. Under Section 133(a) of Article 4.1, any person who violates any provision of Article 4.1 is guilty of a misdemeanor and upon conviction shall be fined in an amount not exceeding $1,000 or be imprisoned in County Jail for not more than six months, or both. Each day each violation is committed or permitted to continue shall constitute a separate offense.

   Any person who knowingly makes any false statement or misrepresentation in any record, report plan, or other document filed with the General Manager, or tampers with or knowingly renders inaccurate any monitoring device or sampling and analysis method required under Article 4.1, shall be punished by a fine of not

APPENDIX A

Hazardous Waste Discharge Response Addresses & Telephone Numbers

THE PRESIDIO TRUST

1750 Lincoln Boulevard
San Francisco, California 94129-0052
415/561-5082 fax 561-2132 rseelbach@presidiotrust.gov

FACSIMILE TRANSMITTAL SHEET

TO: Gary Lieberman	FROM: Ryan Seelbach
ORGANIZATION: Mactec	DATE: December 13, 2005
FAX NUMBER: 707.793.3900	TOTAL NO. OF PAGES INCLUDING COVER: ~~14~~ 12
PHONE NUMBER:	

RE:
Industrial User Class II WW Permit

θ URGENT θ FOR REVIEW θ PLEASE COMMENT θ PLEASE REPLY θ PLEASE RECYCLE

NOTES/COMMENTS:
Gary – Odd pages ~~are coming next.~~ 9

Thanks, Ryan - 415.561.5082

Confidential Communication
This facsimile transmission is intended only for the use of the recipient(s) named above and may contain information that is privileged and confidential. Please forward it directly to the addressee in a sealed confidential envelope. If you are not a named recipient, any dissemination, distribution or copying of information included here is strictly prohibited. If you received this facsimile in error, please notify our office immediately by telephone (collect) and return the original message to the Presidio Trust via the U.S. Postal Service at our expense. Thank you

APPENDIX A

Hazardous Waste Discharge Response Addresses & Telephone Numbers

1. Director, Hazardous Waste Management Division
Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-2000

2. California Environmental Protection Agency
Department of Toxic Substances Control, Region 2
700 Heinz Avenue, Building F
Berkeley, CA 94710
(800) 698-6942

3. City and County of San Francisco
Public Utilities Commission
Bureau of Environmental Regulation
and Management
Bayview Plaza
3801 - 3rd Street, Suite 600
San Francisco, CA 94124
(415) 695-7310

more than $25,000 or by imprisonment in County Jail for not more than six months, or both.

2. Civil Penalties. Under Section 133(b) of Article 4.1, any person who, without regard to intent or negligence, causes or permits any discharge of wastewater or hazardous waste, as defined in Title 22, California Code of Regulations and its amendments, into the City's sewerage system, except in accordance with all permit requirements and other provisions of Article 4.1; violates any provision of a cease and desist order or cleanup and abatement order issued by the General Manager; or violates any requirement or prohibition of Article 4.1, shall be liable civilly to the City in an amount not to exceed $10,000 per day for each violation that occurs.

For intentional or negligent violations, the person so deemed shall be liable civilly to the City in an amount not to exceed $25,000 per day for each violation that occurs.

3. Administrative Civil Penalties. Under Section 133(c) of Article 4.1, notwithstanding Section 133(b), any person who, without regard to intent or negligence, causes or permits any discharge of wastewater or hazardous waste, as defined in Title 22, California Code of Regulations and its amendments, into the City's sewerage system, except in accordance with all permit requirements and other provisions of Article 4.1; violates any provision of a cease and desist order or cleanup and abatement order issued by the General Manager; or violates any requirement or prohibition of Article 4.1, shall be liable civilly to the City in an amount not to exceed $1,000 per day for each violation that occurs.

Notwithstanding Section 133(b), for intentional or negligent violations, the person so deemed shall be liable civilly to the City in an amount not to exceed $2,000 per day for each violation that occurs.

S. Limitation on Permit Transfer

Re-assignment or transfer to a new owner/operator may be approved by the General Manager, provided that:

1. The original permittee gives at least 30 days advance notice to the General Manager, specifying the exact date of change of ownership/operation; and

2. The new owner/operator submits a written certification that:

   a. States that no immediate change of the facility's operations and processes is proposed;

   b. Confirms the exact date on which the transfer is to occur; and

   c. Acknowledges full responsibility for complying with the existing permit.

T. Permit Modification or Re-opening

The terms and conditions of this permit may be subject to modification or re-opening by the General Manager for good causes including, but not limited to, the following:

1. Any new limitations or requirements identified in revisions or amendments to Article 4.1;

2. Additional conditions resulting from any new or revised federal or state pretreatment standards or requirements;

3. Any material or substantial alterations or additions to the permittee's operation processes, or discharge volume or character which were not considered in drafting the effective permit;

4. A change in any condition in either the permittee or the sewerage system, which requires either a temporary or permanent reduction or elimination of the authorized discharge;

5. Information indicating that the permitted discharge poses a threat to the City's sewerage system, or personnel, or the receiving waters;

6. Violations by the permittee of any terms or conditions of the permit;

7. Misrepresentation or failure to disclose fully all relevant facts in the permit application or in any required reporting;

responsibility, or having overall responsibility for environmental matters for the company; and

c. The written authorization is submitted to the General Manager.

4. If an authorization under paragraph 3. of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for environmental matters for the company, a new authorization satisfying the requirements of paragraph 3. of this section must be submitted to the General Manager prior to or together with any reports to be signed by an authorized representative.

O. <u>Confidentiality of Information</u>

1. Any records, reports, or information submitted by the permittee to the General Manager, whether made in writing or by communication incorporated in SFPUC reports, shall be available to the public, except upon a showing made by the permittee, satisfactory to the General Manager, that public disclosure of records, reports or information which the General Manager or other authorized personnel has received would divulge methods or processes entitled to protection as confidential trade secrets. All such records, reports, or information at any time may be disclosed to other authorized city personnel or any local, state or federal agency.

2. Whenever the General Manager makes a written request or orders that the permittee furnish information, the request or order shall include a notice that states that:

   a. The permittee may assert a business confidentiality claim covering specified information; and

   b. If no such claim accompanies the information when the General Manager receives it, it may be made available to the public without further notice to the permittee.

3. In assessing the validity of a business confidentiality claim, the General Manager shall determine whether the information is entitled by statute or judicial order to confidential treatment. In the absence of such a finding, the General Manager shall make the information available for public disclosure.

4. Notwithstanding any other provisions of the above, the permittee's wastewater data is not confidential and shall be made available to the public without restriction.

If the permittee discharges more than 100 kilograms of such waste per calendar month into the City's sewerage system, the notification shall also contain the following information, to the extent such information is known and readily available to the permittee:

4. An identification of the hazardous constituents contained in the wastes;

5. An estimation of the mass and concentration of such constituents in the waste streams discharged during that calendar month; and

6. An estimation of the masses and concentrations of such constituents expected to be discharged in the wastewater during the following 12 months.

Notwithstanding any other requirement of this Part, the permittee shall provide the notification no later than 15 days after the discharge of the listed or characteristic hazardous waste. **These notification requirements do not apply to pollutants already reported in other self-monitoring reports required in Part III.**

L. Right to Enter Premises

Upon the presentation of proper credentials, employees authorized by the General Manager, when necessary for the performance of their duties, shall have the right to enter the permittee's premises. Such authorized personnel shall, at all reasonable hours, be allowed access to any facilities and records necessary for determining compliance, including, but not limited to the ability to:

1. Copy any records, inspect any monitoring equipment, and sample and monitor any wastewater subject to regulation under Article 4.1; and

2. Inspect the permittee's process areas, chemical and waste storage areas and process activities.

Reasonable hours, in the context of inspection and sampling, include any time the permittee is engaged in any activity, which results in wastewater discharge into the City's sewerage system. Notwithstanding any provisions of law, authorized personnel shall be allowed entry to the permittee's premises **at any time**, if the General Manager determines that an imminent hazard to persons or property exists on, or as a result of activities conducted on, the permittee's premises.

M. Duty to Provide Information

The permittee shall submit to the General Manager, within 15 working days, any information which the General Manager may request to determine whether cause exists for modifying, revoking and re-issuing, or terminating this permit; or to determine compliance with this permit.

1. A description of the industrial discharge and cause of noncompliance;

2. The period of noncompliance, including exact date(s) and time(s), or if not corrected, the anticipated time the noncompliance is expected to continue; and

3. Steps being taken and/or planned to reduce, eliminate and prevent recurrence of the noncompliance.

If the permittee fails to report the upset within 5 days, the permittee shall have waived the right to future claim that the noncompliance was due to an upset. If the permittee wishes to establish the affirmative defense of upset to any enforcement action brought for noncompliance, the permittee shall demonstrate, through properly signed contemporaneous operating logs or other relevant evidence that:

a. An upset occurred and the permittee can identify the cause(s) of the upset; and

b. The facility was at the time being operated in a prudent and workman-like manner, and in compliance with applicable operation and maintenance procedures.

H. Slug Loading

The permittee shall verbally notify the General Manager immediately upon the occurrence of an accidental discharge or threatened discharge of a "slug loading"[15] to the sewerage system, resulting from a spill or upset on the permittee's premises. A formal written report, addressing circumstances and remedies shall be submitted to the General Manager within 5 working days of the occurrence. The report shall specify:

1. A description of the nature and cause of the accidental discharge, spill, upset or slug loading. The description should also include location, type, concentration and volume of the discharge;

2. The duration of the discharge, including exact date(s) and time(s), and, if the discharge is continuing, the time by which cessation of the discharge is reasonably expected to occur; and

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of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

[15] *A "slug loading" means any pollutant (including oxygen demanding pollutants) released in a discharge at a flow rate and/or concentration which will cause a violation of the specific prohibitions listed in 40 CFR Part 403.5(b). (See Part I)*

Part IV - STANDARD CONDITIONS

A. Duty to Comply

The permittee must comply with all conditions of this permit. Failure to comply with the requirements of this permit may be grounds for administrative action, including suspension or revocation of this permit, or enforcement proceedings, including civil or criminal penalties, injunctive relief, and severing of the side sewer connection(s).

B. Duty to Re-apply

The permittee must request a renewal or extension of this permit by submittal of a new or revised application at least 90 days before the expiration date of this permit. The General Manager will notify the permittee about the re-application requirement; however, it is the permittee's obligation to re-apply in a timely manner.
An expired permit will continue to be effective and enforceable until the permit is re-issued if:

1. The permittee has satisfied the re-application requirements; and

2. The failure to re-issue the permit in a timely manner is not due to any act, or failure to act, on the part of the permittee.

C. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the sewerage system or the environment, resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

D. Duty to Halt or Reduce Activity

In the event of reduction of efficiency of operation, or loss or failure of all or part of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control its production or discharges (or both) until operation of the treatment facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power to the treatment facility fails or is reduced. It shall not be a defense for the permittee, to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

Part III - REPORTING REQUIREMENTS

A. **Within 60 days** of the effective date of this permit, the permittee shall develop and submit (unless previously submitted) to the General Manager:

1. A manual (or self-developed set of instructions) on the proper operation and maintenance of any wastewater treatment system utilized in the facility;

2. A drawing showing a flow diagram and the components of the wastewater treatment system; and

3. Any required information, which has not been submitted in the permittee's wastewater permit application. The permittee will be informed of the deficiency under separate cover.

B. **Within 60 days** of the effective date of this permit, the permittee shall complete and submit (unless previously submitted) to the General Manager a checklist for a Spill Prevention Control and Countermeasures (SPCC) plan, showing facilities and operating procedures to provide protection against spills or accidental discharges of prohibited or regulated materials.

C. **Within 60 days** of the effective date of this permit, the permittee shall complete and submit (unless previously submitted) to the General Manager a checklist for a Hazardous Waste Reduction Assessment[11] (HWRA) of the facility.

Based upon the contents of the checklist submitted, the permittee may subsequently be required to submit a detailed HWRA, including an accounting of the quantities of certain critical chemicals discharged to the sewers, a plan for reducing the amount of critical chemicals discharged, and a report on previous reductions.

D. **Within 60 days** of the effective date of this permit, the permittee shall complete and submit (unless previously submitted) to the General Manager a checklist for a Stormwater Pollution Prevention Plan[12] (SPPP) for the facility.

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[11] *A "**hazardous waste reduction assessment**" means a systematic planned procedure with the objective of identifying ways to reduce or eliminate hazardous waste. Waste reduction describes the reduction, to the extent feasible, of hazardous waste that is generated or subsequently treated, stored or disposed of. It includes any source reduction or recycling activity undertaken by a generator that results in either (1) the reduction of total volume or quantity of hazardous waste or (2) the reduction of toxicity of the hazardous waste, or both.*

[12] *A "**stormwater pollution prevention plan**" has as its major objectives: (a) to help identify the sources of pollution that affect the quality of stormwater discharges associated with industrial activity; and (b) to describe and ensure the implementation of practices to reduce pollutants in stormwater discharges associated with industrial activity.*

Part II - MONITORING REQUIREMENTS AND SPECIAL CONDITIONS

A. To determine the permittee's compliance with the limitations of Part I above, all wastewater sampling and measurements, which are representative of the nature and volume of the wastewater discharges, shall be performed at the approved side sewer(s) from the facility. The monitoring point(s) may be designated upstream from where the permittee's wastewater discharges into the City's sewerage system, if access at the discharge location(s) is not feasible, or if the permittee's wastewater merges with the discharge from another facility, before entering the City's sewerage system.

B. The permittee may be required to construct, in accordance with current City standards and at the permittee's expense, a monitoring facility in each side sewer, or in areas further upstream on the permittee's property, for wastewater monitoring purposes.

C. The permittee shall ensure that each designated monitoring point is safe, convenient and accessible to authorized City employees.

D. All compliance sampling and analysis shall be performed in accordance with techniques and procedures approved by the EPA pursuant to section 304(g) of the Clean Water Act and contained in 40 CFR Part 136 and amendments thereto, or otherwise approved by the EPA.

E. The permittee may be required to perform self-monitoring of the wastewater discharges. Such self-monitoring shall be performed at a frequency and for such pollutant parameters as required by the General Manager.

F. The permittee may be required to install and maintain meters to continually measure and record the flow rate of the wastewater discharges.

G. The permittee may be required to perform wastewater treatment on its own site prior to discharge into the sewerage system. Where a wastewater treatment system is employed, the permittee shall ensure that a trained operator is on duty during each operating shift of the facility.

H. The permittee shall store all hazardous materials (e.g. corrosives, flammables etc.) and hazardous wastes within a bermed area or by using some other method of secondary containment, to prevent spills from entering the City's sewerage system.

I. If the permittee disposes of process wastewater, spent processing solutions, cartridges, filters, residues, sludges or chemicals by offsite hauling, the following records shall be kept for periodic review and verification by authorized City inspectors:

1. Receipts and/or purchase records for processing chemicals;

4. Garbage, excepting properly ground garbage discharged in accordance with Article 4.1, from dwellings and restaurants or other establishments engaged in the preparation of foods and beverages;

5. Any toxic, hazardous (as defined in the California Code of Regulations at Title 22, or in federal regulations at 40 CFR Part 261), noxious or malodorous substance which either singly or by interaction with other wastes may or will prevent maintenance of the sewerage system or create a nuisance or hazard to the safety of the public or City employees;

6. Any bioaccumulative toxic substance[9] that exceeds the "soluble threshold limit concentration (STLC)"[10];

7. Any wastewater, in temperature or quantity, which will cause the temperature of influent to exceed 104°F (40°C) at the point of introduction to any City wastewater treatment plant; and

8. Any liquids, solids or gases or any discharge that may cause damage or harm to any reclaimed water facility, or that may limit or prevent any use of reclaimed water authorized by Title 22 of the California Code of Regulations.

F. The permittee shall not discharge without a permit any pollutants, except stormwater, directly into a manhole, catch basin, or other opening in the sewerage system other than through an approved side sewer.

G. The permittee shall not increase the use of process water or, in any other way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the requirements of Article 4.1.

H. The permittee shall not discharge groundwater or water from sumps or dewatering facilities into the sewerage system without a permit. An application for a permit pursuant to this paragraph shall be submitted to the General Manager no later than 45 days prior to the proposed commencement of the discharge. Each permit for groundwater discharge shall contain appropriate discharge standards and any other appropriate requirements that must be achieved before discharge into the sewerage system may commence. Such discharges shall be subject to payment of sewer service charges in accordance with the

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9 *A "**bioaccumulative toxic substance**" means a toxic substance that concentrates in living organisms through direct assimilation or accumulation in the food chain, as defined in Title 22, California Code of Regulations and any amendments thereto.*

10 *The "**soluble threshold limit concentration (STLC)**" means the concentration of a solubilized and extractable bioaccumulative or persistent toxic substance, which, if equaled or exceeded in a waste, renders the waste hazardous as defined in Title 22, California Code of Regulations and its amendments.*

Pollutant parameter	Limit (mg/L)
Arsenic (T)	4.0
Cadmium (T)	0.5
Chromium (T)	5.0
Copper (T)	4.0
Lead (T)	1.5
Mercury (T)	0.05
Nickel (T)	2.0
Silver (T)	0.6
Zinc (T)	7.0

[Where T = Total]

2. Based upon grab sampling:

Pollutant parameter	Limit (mg/L)
Cyanide (T)	1.0
Phenols	23.0

D. The permittee shall not discharge wastewater containing radioactive materials unless the following conditions are satisfied:

1. The permittee obtains a permit from the General Manager[4] of the San Francisco Public Utilities Commission (SFPUC) for the discharge of radioactive materials;

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[3] *"**24-hour composite sampling**" means sampling which is performed over an approximate 24 hour period extending over two consecutive days. Wastewater discharge may not be continuous during the sampled period. A "**composite sample**" means a sample that is collected over time, formed either by continuous sampling or by mixing discrete samples. The sample may be composited either as a **time-composite sample**, i.e. composed of discrete sample aliquots collected in one container at constant time intervals, providing representative samples irrespective of stream flow, or as a **flow-proportional composite sample**, i.e. collected either as a constant sample volume at time intervals proportional to stream flow, or collected by varying the volume of each aliquot as the flow varies while maintaining a constant time interval between the aliquots.*

[4] *"**General Manager**" means the General Manager of the San Francisco Public Utilities Commission, or a designated representative of the General Manager.*

APPENDIX E

TRANSPORTATION RECORDS INCLUDING BILLS OF LADING
AND HAZARDOUS WASTE MANIFESTS (DISK)

CD 1 of 2 includes:
August and September 2005, Class I – Kettlemen City
And
May, July, August, September 2005, Class III – Ox Mountain

CD 2 of 2 includes:
June 2005, Class III – Ox Mountain
And
Transformer Oil Disposal

APPENDIX F

REGULATORY CORRESPONDENCE

Seelbach, Ryan

From: Cooper, Craig
Sent: Tuesday, June 07, 2005 2:48 PM
To: 'Robert Boggs'
Cc: 'Brian_Ullensvang@nps.gov'; Seelbach, Ryan; Ford, George; JDP@rb2.swrcb.ca.gov; 'Mark'; 'Doug Kern'
Subject: Update on Fill Site 6A Remedial Action

Bob -

This email provides a brief summary of the status of Fill Site 6A remedial activities. Per a previous email to you, the Trust granted Pacific States Environmental Contractors, Inc. notice to proceed on May 20. On May 24, Pacific States finished mobilizing and began hauling soil to Ox Mountain landfill as Class III daily cover. The contractor is generally working from west to east. The excavation work is going very well and faster than we anticipated.

We exposed the 72-inch storm drain at the north end of the site last week and found undisturbed native soil at a similar depth next to the pipe. We are currently excavating to the design depths shown on our excavation plan.
In some areas we have found apparent clean native soil extending above design elevations - in these areas we have left the native soil in place pending confirmation sampling. As of today, we have removed approximately 30,000 tons of soil.

We are aiming to begin confirmation sampling along the western boundary of the site next week. We will sample in accordance with the RAP and analyze on a quick turn around. Tomorrow, I will email or fax you the Trust's recommended soil confirmation grid map.

At the current rate of progress, we expect the waste removal portion of the project to be completed in late June. The Trust expects to be ready to start the removal of the storm drain in late June and commence channel construction and site restoration in July. We will be working with Ram Ramujam and yourself to address recent DTSC comments and those of the RWQCB concerning the Trust's FS6A Restoration Plan.

Please don't hesitate to call me if you have questions and feel free to drop by the site anytime. If you would like to meet for a site walk prior to our first phase of soil confirmation sampling scheduled for next week, please let me know. I will make the arrangements so the Trust's FS6A Project Manager, Ryan Seelbach, and our site field manager (Anna Henke of Mactec) can join us as well.

Thanks,

Craig

(415) 561-4259

Seelbach, Ryan

From: Cooper, Craig
Sent: Tuesday, July 05, 2005 3:47 PM
To: 'James Ponton'
Cc: RBOGGS@dtsc.ca.gov; 'Brian_Ullensvang@nps.gov'; Ford, George; Mark Youngkin (rabmark@sbcglobal.net); dkern@kernsite.com; Seelbach, Ryan
Subject: Fill Site 6A

Jim:

This email follows up on our phone message left for you earlier today. In accordance with the SWPPP for the Fill Site 6A project contained in the March 29, 2005 Clean Closure Work Plan for Fill Site 6A, we are notifying you of a release of impounded groundwater from Fill Site 6A to the main drain leading to the Crissy Marsh over the weekend. Some time between noon on Saturday and 10:30 am on Sunday a cofferdam composed of clean soil built in front of the 72-inch drain at the north end of the site failed, allowing cofferdam soil and impounded groundwater to enter the pipe. We believe the cofferdam soil was stopped by a secondary sand bag cofferdam that had been built inside the pipe as insurance against such an occurrence. However, groundwater flowed around the sand bag cofferdam and down to the marsh.
This flow of groundwater down the pipe continued until this morning, when a new, larger soil cofferdam was placed in front of the pipe. Based on our visual inspections carried out Sunday morning, the groundwater flowing into the pipe was clear. No mud plume or evidence of recent sediment deposition was observed at the pipe outlet in the Crissy Marsh on Sunday morning.

The Trust has analytical data for the groundwater indicating that it meets standards for discharge into surface waterways under the non-storm flow dewatering provisions of the General Permit. Because the groundwater meets discharge requirements and no sediment flowed to the marsh, we believe we remain in compliance with the conditions of the General Permit. However, we wanted to let you know of this occurrence in recognition of the requirements of our SWPPP, which are more stringent than those of the General Permit. We are preparing a more detailed report and will submit it to you by July 8 (i.e. within 7 days of the event).

If you have any questions about this email, please call me or George Ford.

Thanks,
Craig

VIA FACSIMILE

July 8, 2005

Mr. James Ponton
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Notice of Discharge of Groundwater to a Surface Drain
Fill Site 6A Remedial Action
Presidio of San Francisco, California

Dear Mr. Ponton:

This letter has been prepared to notify the California Regional Water Quality Control Board (RWQCB) that a discharge of impounded groundwater occurred over the July 4 weekend from the Presidio Trust's (Trust's) Fill Site 6A remediation project located at the corner of Girard and Lincoln Blvd in the Presidio of San Francisco. In accordance with the Storm Water Pollution Prevention Plan (SWPPP) in our Clean Closure Work Plan dated March 29, 2005, the Trust left a voice message with you on the next work day (Tuesday, July 5 at approximately 3PM) as a preliminary notification and sent a follow up email later in the day on July 5. Please note that our assertion in the July 5 email that no Fill Site 6A cleanup standards for surface water were exceeded was mistaken. There were minor exceedances of certain FS-6A cleanup levels for metals. This letter provides corrected information.

On Friday, July 1 the Trust remediation contractor, Pacific States Environmental (PSE) finished removal of the 72-inch storm drain. In accordance with their storm drain relocation plan, the contractor used the following measures to contain the groundwater:

- Constructed sand bag dams lined with plastic into the up- and down stream sections of the open storm drain to prohibit groundwater from mixing with stream water or flowing out of the excavation via the open storm drain.
- Installed a temporary 4-inch PVC pipe into the open trench to convey the stream water across the site until completion of the stream channel.
- Constructed several cofferdams with clean native soil across the open trench and across the storm drain openings.

Some time between approximately noon on Saturday and 1030 Sunday morning the cofferdam built immediately in front of the northernmost 72-inch storm drain opening failed, allowing cofferdam soil and impounded groundwater to enter the pipe. We believe the cofferdam soil was stopped by a secondary sand bag cofferdam that had been built inside the pipe as insurance against such an occurrence. However, groundwater flowed over the sand bag cofferdam and down to the Crissy Marsh until Tuesday morning, when a new, larger soil cofferdam was placed in front of the pipe.

Based on our visual inspections carried out Sunday morning, the groundwater flowing into the pipe was clear. No mud plume or evidence of recent sediment deposition was observed at the pipe outlet in the

Crissy Marsh on Sunday morning. The Trust estimates approximately 20,000 gallons of groundwater may have been released into Crissy Marsh.

On June 23 the Trust collected analytical data for the groundwater impounded in a steel holding tank in order to characterize it for disposal in the sanitary sewer. These data are shown in Table 1 (attached). We have also included cleanup levels for drinking water and surface water taken from Table 3 of the March 2004 *Remedial Action Plan for fill Site 6a And Baker Beach Disturbed Areas 3 and 4*. These data indicate the reported lead concentration in the groundwater in the holding tank on June 23 of 5.5 micrograms per liter (ug/l) exceeded the lead cleanup level of 3.2 ug/l. The laboratory reporting limits for silver, mercury and cadmium also exceeded their respective cleanup levels.

On July 5 the Trust collected another sample of the impounded groundwater at the point where the release occurred. The results are also included in the attached table. These data indicate a reported lead concentration of 8.5 ug/l, exceeding the cleanup level of 3.2 ug/l. The laboratory reporting limits for silver, mercury and cadmium also exceeded their respective cleanup levels.

In order to avoid another discharge event, Pacific States Environmental Contractors is implementing the following control measures:

1. Increasing the height of the sand bag dam inside the storm drain opening at the site's north end;
2. Placing a 6-foot high cofferdam of clean soil against the plywood cover to prevent another dam failure;
3. Installing a sump pump with float control system to maintain a safe level of groundwater several feet below the top of the 6-foot dam.
4. The sump pump will transfer groundwater to our holding tank for settling and subsequent disposal into the sanitary system.

We trust that this letter sufficiently documents the discharge and outlines an approach to reduce the possibility of another release. Please feel free to contact us if you have any additional problems or concerns regarding this letter.

Sincerely,

George A. Ford
Manager, Remedial Construction

Enclosures 1) Summary of COC and Analytical Data

CC: Bob Boggs, Department of Toxic Substances Control
Brian Ullensvang, National Park Service
Doug Kern, Restoration Advisory Board
Mark Youngkin, Restoration Advisory Board

Table 1 – Summary of Analytes, Fill Site 6A Impounded Groundwater

Pollutant Parameter	Sample 1 (6/24/05)	Sample 2 (7/5/05)	Limit[1]
pH (Field)	8.03	6.81	N/A
Conductivity (Field)	850	606	N/A
Temperature (Field)	20.5 C	15.9 C	N/A
Turbidity (Field)	51.3 NTUs	98.0 NTUs	N/A
pH	8.3	6.8	N/A
Dissolved Sulfides	<0.04 mg/L	0.04 mg/L	N/A
Oil & Grease	<4.72 mg/L	<5.0 mg/L	N/A
Phenols	<9.5 ug/L	<11 ug/L	N/A
Total Cyanide	<0.01 mg/L	<0.01 mg/L	N/A
Arsenic	<5.0 ug/L	<5.0 ug/L	10 ug/l
Cadmium	<5.0 ug/L	<5.0 ug/L	1.1 ug/l
Chromium	<10 ug/L	22 ug/L	50 ug/l
Copper	<10 ug/L	<10 ug/L	11.8 ug/l
Lead	**5.5 ug/L**	**8.5 ug/L**	3.2 ug/l
Mercury	<0.20 ug/L	<0.20 ug/L	0.012 ug/l
Nickel	<20 ug/L	<20 ug/L	100 ug/l
Silver	<5.0 ug/L	<5.0 ug/L	4.1 ug/l
Zinc	Not Analyzed	<20 ug/L	106 ug/l

1) Cleanup levels for Drinking Water and Surface Water taken from Table 3 of the March 2004 Remedial Action Plan for Fill Site 6A and Baker Beach Disturbed Areas 3 and 4
2) Exceedance of cleanup level marked in bold. Underlined results indicate reporting limit exceeded cleanup level.

Via Fax and Regular Mail

July 15, 2005

Mr. Robert M. Boggs, Jr.
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

Subject: Fill Site 6A
Storm drain segment abandonment

Dear Bob:

This letter is to confirm our understanding regarding the segment of 72-inch diameter drain pipe to be left in place at Fill Site 6A. The Trust had intended to remove the entire pipe from Fill Site 6A. However, upon beginning excavation, we found that several conditions affected our ability to do this:

1. The pipe was located approximately 8 feet farther west (closer to Halleck Street and Buildings 225 and 225) than had been shown on Trust utility drawings.
2. The pipe was slightly deeper than had been anticipated, because the south end of the pipe was located approximately six feet lower than had been estimated in the remedial design.

Despite these complications, until Thursday, June 30, the Trust had expected to remove the entire length of pipe. However, based on your concerns expressed during your site visit on Wednesday, June 29 and our own observations made in the field during Thursday's pipe removal operations, we conclude the pipe passes too close to the southwest corner of Building 225 to allow safe removal without installation of protective shoring, and/or tiebacks. After confirming that this segment of pipe could be left in place without adversely affecting the protectiveness of the remedial action or the planned stream restoration, we concluded that it was best to leave the segment of pipe adjacent to Building 225 in place. On Friday, July 1 the balance of the rest of the pipe was removed, leaving 6 segments (approximately 72 linear feet) of pipe in place beneath the slope on the east side of Building 225.

We understand that DTSC is comfortable leaving pipe in-place under the following conditions:

1. The pipe should be clean of contaminated soil or sediment. [Note: Trust observations indicate the pipe in this area is sediment free.]
2. The pipe will be fully grouted up using controlled-density fill, foam concrete, sand-cement grout or other suitable material so that it will not act as a hydraulic conduit.
3. Trust to take confirmation samples to document conditions on ends of the remaining segment, as well as on the soil slope above the segment. Per our discussion on July 1, the Trust will flag these proposed sample locations for DTSC field review and concurrence.
4. The pipe location is surveyed.

We agree to comply with these conditions. We will include documentation of our compliance with these conditions in the construction completion report for the Fill Site 6A project. In the meantime, please call us if you have questions.

Sincerely,

Craig Cooper

Craig Cooper
Manager – Environmental Remediation Program

CC: Jim Ponton, RWQCB
Brian Ullensvang, NPS
Mark Youngkin and Doug Kern, RAB

Cooper, Craig

From: Cooper, Craig
Sent: Friday, July 08, 2005 5:51 PM
To: 'James Ponton'
Cc: 'Robert Boggs'; Brian_Ullensvang@nps.gov; Ford, George; Seelbach, Ryan; dkern@kernsite.com
Subject: Notification of Discovery of Petroleum Soil Contamination at Fill Site 6AI

Jim :

Per our telephone conversation earlier today and to comply with the Presidio Trust's Petroleum Contingency Plan (dated 16 August 2004), this email serves to document the discovery of an unknown section of fuel distribution system (FDS) piping and fuel oil impacted soils while digging at Fill Site 6A (see attached photo). The FDS apparently supplied the former nurse's quarters that was demolished by the Army in 1987. The FDS was located approximately 100 feet from Lincoln Blvd on the west side Girard Road. The FDS line was discovered while the the Trust's Fill Site 6A remediation contractor was removing the building's basement (that rests directly on the Colma Formation) earlier this week.

The contractor removed the FDS piping and excavated beneath the piping and then found an area of stained soil at the Fill – Colma contact. The soil contained the normal odor commonly found in fuel oil impacted soils. We over-excavated approximately 50 cubic yards of soil and stopped where staining became no longer visible near the groundwater table. We also found a smaller area of stained soil (less than 5 cubic yards) and we over-excavated that area as well. The two excavations are located in the same general area and are shown in the second attached photograph. The excavated material will be charaterized and hauled off for off-site disposal. It is recommended that potential water quality impacts associated with this petroleum contingency area should be assessed with an appropriately located groundwater monitoring well required by post-remediation monitoring for the Fill Site 6A site.

Confirmation sampling at both petroleum excavation areas shall be conducted in accordance with Section 4.6.3 of the Petroleum Contingency Plan. One sample has already been collected from the bottom of the larger excavation which went approximately 10-12 feet below the former building's basement floor. Once the entire building is removed the Trust will collect additional confirmation samples in accordance with the Petroleum Contingency Plan. As we discussed, because the petroleum contingency site was discovered during a remedial action of a CERCLA site, no separate Contingency Site Cleanup Report per Section 4.9 of Petroleum Contingency Plan is required. However, a full accounting of the cleanup actions taken at these petroleum cleanup areas will be incorporated into in the construction completion report for the Fill Site 6A remedial action.

Please feel free to contact me if you have any questions or concerns.

Sinerely,

Craig Cooper

Remediation Program Manager
The Presidio Trust
(415) 561-4259

Seelbach, Ryan

From: Henke, Anna [AHHenke@mactec.com]
Sent: Monday, October 17, 2005 2:47 PM
To: Seelbach, Ryan
Subject: FW: Follow-up Confirmation Sampling at Fill Site 6A
Attachments: FSP_Oct05.jpg; B-B' cross sect scetch.pdf

Anna Henke, R.G.

Project Geologist--MACTEC E & C
5341 Old Redwood Highway, Suite 300
Petaluma, California 94948
Office 707 793 3849, Fax 707 793 3900
Mobile 415 328 0684
ahhenke@mactec.com

-----Original Message-----
From: Heassler, Mary Jo
Sent: Thursday, October 13, 2005 6:39 PM
To: Lieberman, Gary; Henke, Anna
Subject: FW: Follow-up Confirmation Sampling at Fill Site 6A

Mary Jo Heassler
MACTEC Engineering and Consulting, Inc.
5341 Old Redwood Highway, Suite 300
Petaluma, CA. 94954
Phone (707) 793-3845
Facsimile (707) 793-3900

-----Original Message-----
From: Cooper, Craig [mailto:CCooper@presidiotrust.gov]
Sent: Thursday, October 13, 2005 5:57 PM
To: Robert Boggs
Cc: dnarala@waterboards.ca.gov; Brian_Ullensvang@nps.gov; Heassler, Mary Jo; DOUGLAS KERN; rabmark@sbcglobal.net; Ford, George
Subject: Follow-up Confirmation Sampling at Fill Site 6A

Dear Bob:

This email provides the Trust's recommendations in response to items of concern that were discussed at our last Fi Site 6A site visit held on October 5. Topics discussed included:

- Perimeter over-excavations
- Additional Sampling at over-excavation of bottom sample LF6EX143(24.5)
- Site area east of Redwood Grove
- Surface water sampling associated with the Spring

Perimeter over-excavations – LF6EX108(3.0), LF6EX134(2.5), LF6EX147(1.0): At each of these locations, Paci States Environmental Contractors, Inc. (PSEC) removed approximately 2 cubic yards of material associated with tl PCB exceedances. This work was performed under Mactec's supervision and with the concurrence of the Trust. These over-excavations were relatively small in order to avoid destabilizing the 2:1 excavation perimeter slopes an "hard" structures located along the perimeter of the site. The purpose of these excavations was to remove reported PCB exceedances near the site perimeter. We believe this work was accomplished and although is documented by single confirmation sample, the RAP acknowledges that perimeter samples may exceed cleanup levels (i.e. they maybe identifying contamination at Fill Site 6B). Therefore the Trust proposes no additional sampling to characte these over-excavations. We understand that the ultimate boundary between Fill Site 6A and Fill Site 6B may not t materially affected by these over-excavations.

Bottom sample over-excavation – LF6EX143(24.5): As discussed during our October 5 field walk, at this locatior mottled reddish-black coloration observed on a cut surface in native Colma appeared to correlate with the reported metal exceedances in sample LF6EX143 (24.5). George Ford of the Presidio Trust observed and discussed the physical conditions of this exceedance with his construction oversight consultant (Mactec, Inc.) and plotted out a small over-excavation area (approximately 10 feet X 10 feet X 1 foot in depth) that would completely remove the mottled soil. This mottled native Colma soil was physically separate from, occurred at a different elevation from, texturally and mineralogically distinct, and bore no physical resemblance to the fill soil at other portions of the site including fill located on the west cut face of the "redwood island" where sample LF6EX132 (9.0) was taken. Base on these substantial differences, the Trust believes there was no physical connection between the copper exceedan at these two locations. The Trust believes that visual observations and the confirmation sample LF6EX148 (25.5) taken after the over-excavation are important indicators that the removal of the mottled soil was complete. In hindsight, we regret that we did not involve DTSC during the field decisions, as was done during previous over-excavations at this site, concerning the particulars about this over-excavation. Therefore, as requested by DTSC, t Trust would like to propose the following additional sampling to document that the soil containing elevated coppe and other metals in excess of cleanup levels detected in sample LF6EX143(24.5) was removed from this location i accordance with the RAP.

As shown on Figure 1 (see attached) we propose to collect three additional soil samples in this area to document th soil in the vicinity of samples LF6EX143 and -148 meets cleanup levels. Because subsequent stream constructior has changed the topography in this area (as illustrated in the attached Figure 2), the draft FS6A cross section , we propose to take samples of the soil and sediments that now occur near the ground surface, adjacent to and in the stream channel. We propose to sample as follows:

- One sample will be collected approximately 10 to 15 feet northeast of grid point B-2 to document that the copper exceedance formerly noted at LF6EX143 was not physically connected to the exceedance reported f sample LF6EX132(9.0). This sample will be taken by excavating through the fill embankment into the forn native Colma surface and recovering a sample of the Colma immediately beneath the former cut surface.
- One sample of the native Colma soil located within the stream channel approximately 10 to 15 feet upstrear the former location of sample LF6EX143 and -148. These sediments could potentially be transported downstream to the marsh under high-flow events, and therefore represent materials that might reasonably p a threat to saltwater aquatic species if the materials were to contain elevated copper.
- One sample of the native soils that were removed from the stream channel and placed along the east bank o the stream (see Figure 2). The sample will be collected from 1-2 feet below existing grade to characterize tl soils that were relocated from both west and east banks as part of the LF6EX143 over-excavation activities.

The approximate locations of these samples are shown on Figure 1. The Trust may use an excavator or hand-auger collect subsurface soil samples. Samples will be collected and labeled in accordance with the Presidio's SAP/QAI and will be formally documented in the Fill Site 6A Construction Completion Report. The samples will be analyz for metals (EPA Method 6010/6020) only because confirmation samples in this area, LF6EX143 and -148, indicat no detectable PCBs.

East of the Redwood Island: The Trust proposes no additional sampling in this area. We propose to define the ar east of the Redwoods as an ecological land use control zone (LUC). Based on our telephone conversation on Octo

10, such proposal appears to be acceptable to DTSC as well. The Trust is preparing to backfill the area east of the Redwoods with the Colma soils located in the Dust Bowl sometime after October 17. The operation will take approximately 1 week to move approximately 6,000 cubic yards of material. The area will be graded to match the revised restoration grading plan dated August 22, 2005. Please let me know if you have any concerns.

<u>Spring Sampling:</u> We understand that DTSC is concerned that the spring flow entering the stream channel from th southeast corner of the stream zone near grid point B-1 may become exposed to ecological receptors. It should be noted that long term pre-remediation monitoring of groundwater at Fill Site 6A did not indicate the presence of groundwater contamination, however selenium and zinc were added as potential contaminants of concern as discus in the RAP (see RAP Section 3.4.4). Surface water was checked prior to remediation and on a couple of occasion during the Fill Site 6A remediation. All monitoring of the stream water quality to date indicates that groundwater and surface water conditions at this site are acceptable for the anticipated future re-use of the site. In order to addı DTSC concern about the spring, the Trust proposes to collect two surface water samples in accordance with the Trust's SAP/QAPP Standard Operating Procedures for surface water sampling. Samples will be collected as follo

1) One water sample from an approximate 1'x1'x1' hole located approximately 5 to 10 feet southwest of t stream channel in the area that remains saturated from spring flow.

2) One water sample from the cut-off drain's discharge point in the east bank of the stream channel, slightl north of grid point B-3.

The locations of both surface water samples were identified during our October 5 field walk and are shown on Figı 1. These surface water samples will be analyzed for 23 metals, hexavalent chromium (using EPA Method 7196A TPH – diesel/fuel oil and general water quality parameters collected in the field, including dissolved oxygen as discussed in the RAP (see RAP Section 6.1). Water samples will be field filtered and QA/QC conducted per the Trust's SAP/QAPP. A duplicate water sample will be collected during this sampling event.

The Trust proposes to collect these samples immediately upon DTSC concurrence and would like to conduct samp collection on or about October 17. Chemical analyses will be performed on a rapid turn-around basis and the preliminary data will be reported to you via fax or email before data validation is complete. The data will be inclu in the construction completion report now being prepared by Mactec.

Please let me know if this proposed field sampling event presents any concerns with DTSC or if you would like to confirm our sample locations or observe the sampling in the field. Please call me at (415) 561-4259 if you have questions.

Sincerely,

Craig Cooper
Presidio Trust
Environmental Remediation Program Manager

Attachments:
Figure 1: Sample Location map
Figure 2: Draft cross section through stream channel at LF6EX143/148 (Fill Site 6A)

Seelbach, Ryan

From: Cooper, Craig
Sent: Monday, October 03, 2005 5:23 PM
To: 'Robert Boggs'; Devender Narala (dnarala@waterboards.ca.gov); 'Brian_Ullensvang@nps.gov'
Cc: Seelbach, Ryan; Ford, George
Subject: Field Walk at Fill Site 6A - October 5, 11:30am

Bob -

Thanks for agreeing to move our next Fill Site 6A field visit to **October 5 at 11:30am**. Let's meet on-site. I understand that both Devender and Brian can join us. The Trust plans to email out updated FS6A data tables and figures by COB October 4 (tomorrow). During this site visit we can:

- Field locate the 3 recent perimeter samples on the east (Girard Rd side) of site;
- Discuss adequacy of confirmation samples taken to date (including pesticide sampling and new UCL calculations for exceedences);
- Field locate the Trust's *proposed* seep sample location;
- Discuss timing for backfilling the east side of the site;
- Discuss timing for Trust presentation of figure with proposed A/B boundary and Redwood Tree Zone.

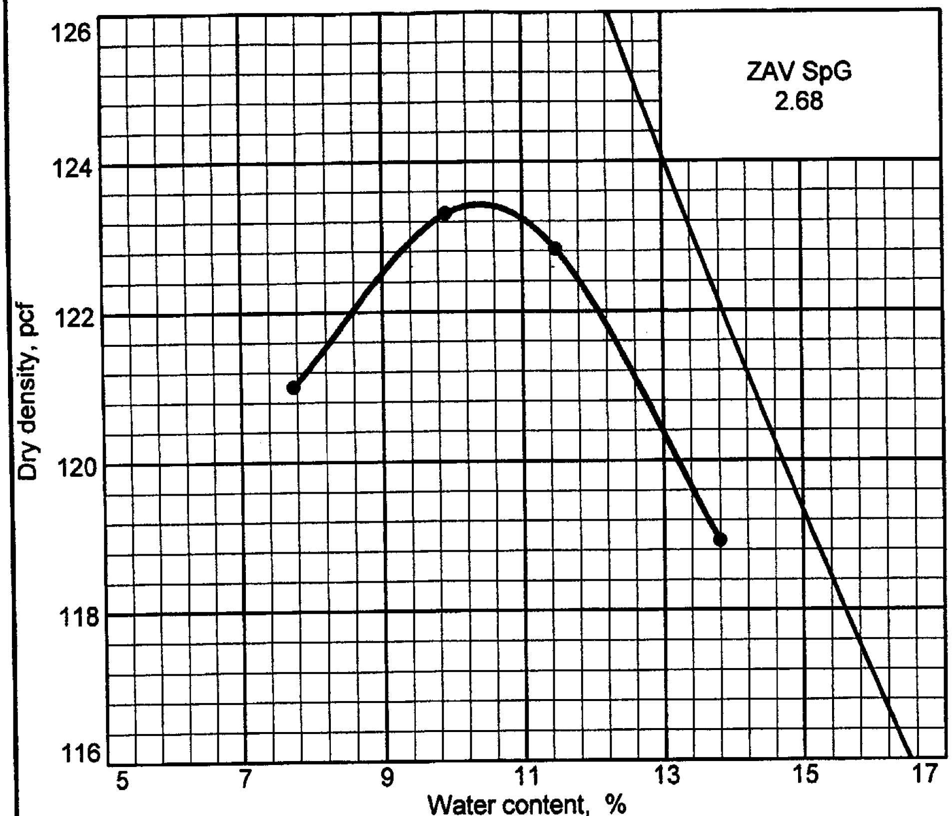
Let me know if you have any comments or questions. Otherwise, I will see you on the 5th.

Thanks,
Craig

APPENDIX G

COMPACTION TEST RESULTS

COMPACTION TEST REPORT



Curve No.
A

Test Specification:
ASTM D 1557-00 Method A Modified

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 25
Mold Size: .03333 cu.ft.
Test Performed on Material Passing No.4 **Sieve**

Soil Data
NM ____ **Sp.G.** ____
LL ____ **PI** ____
%>No.4 ____ **%<#200** ____
USCS SC **AASHTO** ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	3931.0	4009.0	4030.0	4006.0		
WM	1960.0	1960.0	1960.0	1960.0		
WW + T #1	523.70	524.70	509.50	524.70		
WD + T #1	491.80	487.30	465.30	470.80		
TARE #1	79.80	110.00	80.10	80.20		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	7.7	9.9	11.5	13.8		
DRY DENSITY	121.0	123.3	122.8	118.9		

TEST RESULTS

Maximum dry density = 123 pcf

Optimum moisture = 10 %

Material Description

Brown Clayey Sand (SC)

Project No. 55213.00311 **Client:** Mactec E&C
Project: Site 6A Restoration

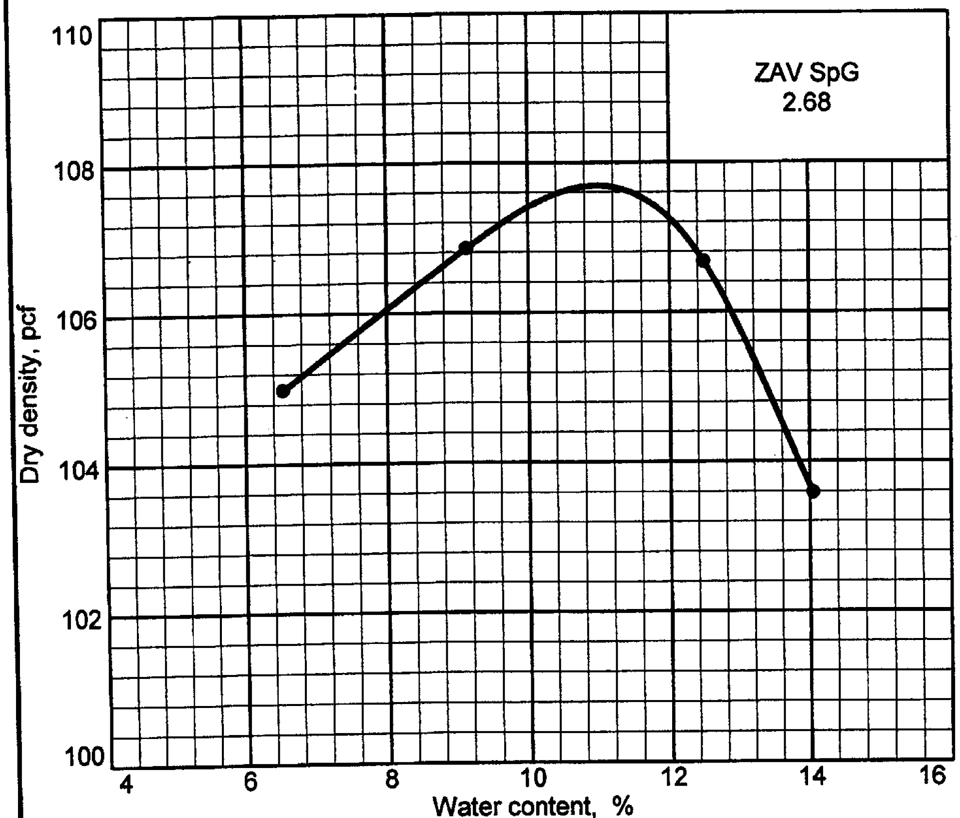
● **Source:** Bulk A **Elev./Depth:** 0.0'

Remarks:
Import
YcP

R G H CONSULTANTS, INC.

Plate

COMPACTION TEST REPORT



Curve No.
Bulk

Test Specification:
ASTM D 1557-00 Method A Modified

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 25
Mold Size: .03333 cu.ft.
Test Performed on Material Passing No.4 **Sieve**

Soil Data

NM ______ **Sp.G.** ______
LL ______ **PI** ______
%>No.4 ______ **%<#200** ______
USCS SP-SM **AASHTO** ______

TESTING DATA

	1	2	3	4	5	6
WM + WS	3651.0	3723.0	3774.0	3746.0		
WM	1960.0	1960.0	1960.0	1960.0		
WW + T #1	573.10	488.70	585.90	555.10		
WD + T #1	543.20	455.00	533.10	497.00		
TARE #1	85.90	86.00	110.20	83.50		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.5	9.1	12.5	14.1		
DRY DENSITY	105.0	106.9	106.7	103.6		

TEST RESULTS

Maximum dry density = 108 pcf

Optimum moisture = 11 %

Material Description

Brown Sand W/Silt (SP-SM)

Project No. 55213.00311 **Client:** Mactec E&C
Project: Site A Restoration

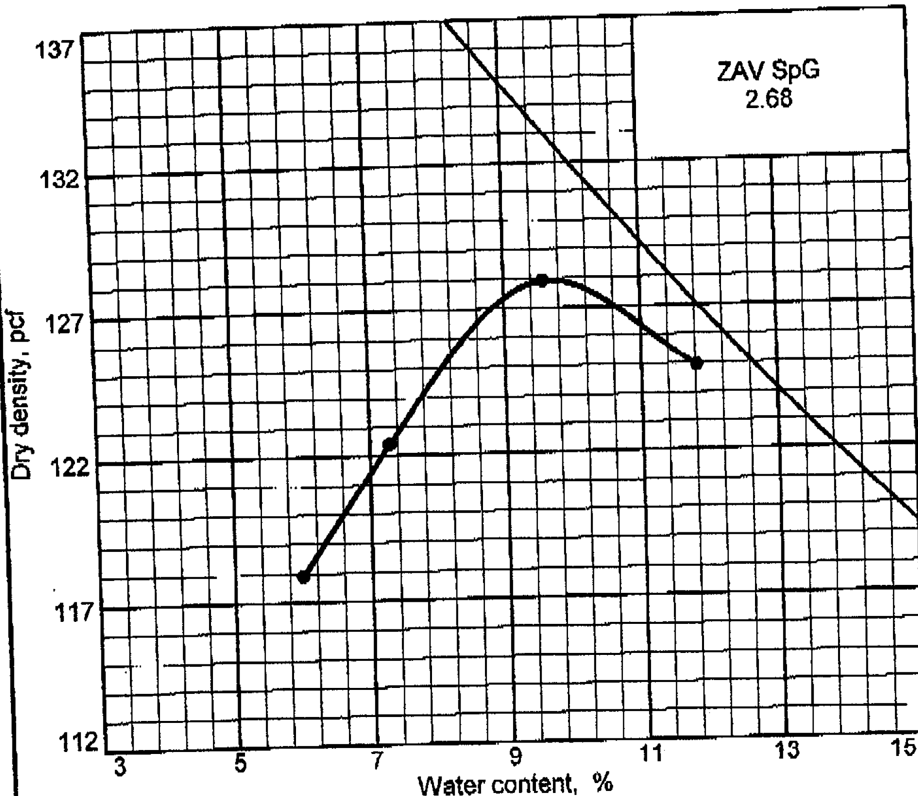
● **Source:** Bulk **Elev./Depth:** 0.0'

Remarks:

RGH CONSULTANTS, INC.

Plate

COMPACTION TEST REPORT



Curve No.
A

Test Specification:
ASTM D 1557-00 Method A Modified

Hammer Wt.: 10 lb.
Hammer Drop: 18 in.
Number of Layers: five
Blows per Layer: 25
Mold Size: .03333 cu.ft.
Test Performed on Material Passing No.4 **Sieve**

Soil Data

NM		Sp.G.	
LL		PI	
%>No.4		%<#200	
USCS	SC	AASHTO	

TESTING DATA

	1	2	3	4	5	6
WM + WS	3953.0	4087.0	4080.0	3857.0		
WM	1968.0	1968.0	1968.0	1968.0		
WW + T #1	717.80	616.00	683.60	651.00		
WD + T #1	674.70	571.80	623.00	620.40		
TARE #1	83.20	110.20	110.50	109.80		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	7.3	9.6	11.8	6.0		
DRY DENSITY	122.4	127.9	124.9	117.9		

TEST RESULTS

Maximum dry density = 128 pcf

Optimum moisture = 10 %

Material Description

Brown Grey Clayey Sand (SC)

Project No. 5521300311 **Client:** Mactec E&C

Project: Presidio, Site 6A Restoration

● **Source:** Bulk A **Elev./Depth:** 0.0'

Remarks:
On-Site Excavation

R G H CONSULTANTS, INC.

Plate

MACTEC

DAILY FIELD REPORT

JOB NO. 55213 00311

PAGE 1 OF 2

PROJECT NAME: 6A Restoration	CLIENT OR OWNER	DAILY FIELD REPORT SEQUENCE NO. 1
GENERAL LOCATION OF WORK	OWNER OR CLIENT'S REPRESENTATIVE	DATE 8/30/05 / DAY OF WEEK Tuesday
	GRADING CONTRACTOR	PROJECT ENGINEER Jim Henderson
TYPE OF WORK	GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN	
SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE)	WEATHER	TECHNICIAN Joe Phaloy

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	MOISTURE CONTENT %	% OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	MAXIMUM DRY DENSITY lbs/cu. ft.	OPTIMUM MOISURE CONTENT %	COMMENTS
1	West Bank	14.0	112.8	17.8	88		128	10%	
2	" "	14.0	115.2	15.7	90		128		
3	" "	14.0	113.2	17.4	88		128		

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

This morning I met Neil Mock of Clearwater Hydrology and Steve Zembsch of Watershed Science. I was briefed on the project by Anne. From the construction specifications for fill noted on Figure 8 of the report, note 8 requires 80 to 85 percent relative compaction based on ASTM-1557.

The material being compacted is clean onsite excavated material, a sand with clay. The material is very wet and is being compacted by track walking with a Bob-Cat. They are working on the West bank below building 222. The fill material is being placed and compacted, for the most part, on a level surface. They have only placed 1 to 2 feet of fill.

TIME BILLED HRS., NO. OF VISITS CONTINUED ☐

RECEIVED BY COPY GIVEN TO

MACTEC Engineering & Consulting

SHEET 2 OF 2

JOB NO. 55213 - 00311

DATE 8/30/05

TO Jim Henderson

BY Jer. Phaby

PROJECT 6A Restoration

SUBJECT Daily Field Report # 1

EQUIPMENT IN USE:

Arrived:

I obtained bulk sample from the fill area for a compaction curve, I also performed 3 density tests. I should have the results of the compaction curve tomorrow and will return to the site for additional testing.

Departed:

Attachments:

Initials:

MACTEC

DAILY FIELD REPORT

JOB NO. 55213-00311

PAGE 1 OF

PROJECT NAME	CLIENT OR OWNER	DAILY FIELD REPORT SEQUENCE NO.
6A Restoration		2
GENERAL LOCATION OF WORK	OWNER OR CLIENT'S REPRESENTATIVE	DATE: 8/31/05 — DAY OF WEEK: Wed
	GRADING CONTRACTOR	PROJECT ENGINEER: Jim Henderson
TYPE OF WORK	GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN	
SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE)	WEATHER	TECHNICIAN: Joe Phaby

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	MOISTURE CONTENT %	% OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	MAXIMUM DRY DENSITY lbs/cu. ft.	OPTIMUM MOISURE CONTENT %	COMMENTS
4	West Bank	15.0	115.4	14.6	90		128	10.0%	
5	" "	15.0	118.2	13.8	92		128		
6	" "	15.0	120.3	15.0	94		128		

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

The contractor continues to place small amounts of fill. Three additional density tests were performed. With the results of yesterdays and todays tests, compaction has ranged from a low of 88 to a high of 94 percent relative compaction. The clayey sand is subject to pumping when placed wet of optimum moisture with repeated wheel traffic. Today test results indicate 4 to 5 percent above optimum moisture content and the fill surface is pumping. They are not going to place much fill for the remainder of the week. With less traffic on the fill surface, the pumping might settle down.

TIME BILLED HRS., NO. OF VISITS CONTINUED ☐

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DAILY FIELD REPORT

JOB NO. 55213-00311
PAGE 1 OF

PROJECT NAME	CLIENT OR OWNER	DAILY FIELD REPORT SEQUENCE NO.	
GA		3	
GENERAL LOCATION OF WORK	OWNER OR CLIENT'S REPRESENTATIVE	DATE	DAY OF WEEK
		9/7/05	
	GRADING CONTRACTOR	PROJECT ENGINEER	
		Jim Henderson	
TYPE OF WORK	GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN		
SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE)	WEATHER	TECHNICIAN	
		Joe Phaby	

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	FIELD TESTING: MOISTURE CONTENT %	FIELD TESTING: % OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	REFERENCE CURVE: MAXIMUM DRY DENSITY lbs/cu. ft.	REFERENCE CURVE: OPTIMUM MOISURE CONTENT %	COMMENTS
7	West Bank	16.0	119.6	15.7	93		128		
8	" "	16.0	117.3	16.6	91		128		

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

Not much new fill has been placed since Wednesday but the pumping is now bad. I recommended that they remove the upper few inches, scarify and allow to dry before any new fill is placed. The excavated material should also be allowed to dry prior to placement.

TIME BILLED HRS., NO. OF VISITS CONTINUED ☐

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DAILY FIELD REPORT

JOB NO. 55213-00311

PAGE 1 OF 1

PROJECT NAME: 6A Restoration

CLIENT OR OWNER:

DAILY FIELD REPORT SEQUENCE NO. 4

GENERAL LOCATION OF WORK:

OWNER OR CLIENT'S REPRESENTATIVE:

DATE: 9/14/05

DAY OF WEEK: Wed

GRADING CONTRACTOR:

PROJECT ENGINEER: Jim Henderson

TYPE OF WORK:

GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN:

SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE):

WEATHER:

TECHNICIAN: Joe Phaby

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING:

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	MOISTURE CONTENT %	% OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	MAXIMUM DRY DENSITY lbs/cu. ft.	OPTIMUM MOISURE CONTENT %	COMMENTS
9	West Bank	16.0	120.7	11.9	95		128		Retests
10	" "	16.0	115.6	13.0	91		128		of wet
									material
									scarified
									9/7

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

They have recompacted the wet material Scarified last Wednesday 9/7. The moisture content was reduced and the pumping has been reduced to a little deflection. Little or no material will be placed during the remainder of this week.

TIME BILLED HRS.,

NO. OF VISITS

CONTINUED ☐

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JOB NO. 55213.00311

DATE 10/19/05

PROJECT 6A Restoration

TO Jim Henderson

SUBJECT Daily Field Report # 5

BY Joe Phelay

EQUIPMENT IN USE: None

Arrived: 9:45

ERRG have a dozer and compactor onsite, no equipment is working also, no material has been imported yet.

Watershed science is spreading saturated material excavated from the creek on the previously compacted west slope. The wet material is being mixed with some dry soil and will be spread thin and allowed to dry prior to compacting. At this time of the year, it might require some time to dry.

Departed: 10:30

Attachments:

Initials: JCP

MACTEC

DAILY FIELD REPORT

JOB NO. 55213.00311
PAGE 1 OF 2

PROJECT NAME: 6A Restoration	CLIENT OR OWNER: Presidio Trust	DAILY FIELD REPORT SEQUENCE NO.: 6
GENERAL LOCATION OF WORK: Site 6A	OWNER OR CLIENT'S REPRESENTATIVE: George Forde	DATE: 10/21/05 — DAY OF WEEK: Friday
	GRADING CONTRACTOR: Watershed Science & ERRG	PROJECT ENGINEER: Jim Henderson
TYPE OF WORK: Grading	GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN:	
SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE):	WEATHER: Cool & Fog	TECHNICIAN: Joe Phabey

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING: Trucks Dozer Compactor

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	MOISTURE CONTENT %	% OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	MAXIMUM DRY DENSITY lbs/cu. ft.	OPTIMUM MOISURE CONTENT %	COMMENTS
11	se map		116.6	14.7	91		128	10	
12			119.2	11.6	93		128	10	
13			120.8	14.5	98		123	10	
14			119.2	14.0	97		123	10	
15			121.0	14.3	98		123	10	
16			121.3	13.3	98		123	10	

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

Watershed Science has placed about 3 feet of fill at the north end of the site above the outfall storm drain pipe. Two satisfactory density tests were performed.

ERRG is placing and compacting import fill along the entire east bank. Four density tests were performed and a bulk sample of the import material was collected for a compaction curve. The fill material is a little wet of optimum, but no pumping was observed. Small amounts of wood and debris is contained in the import and the contractor is removing it as they find it. The fill material is coming from a stockpile

TIME BILLED 4 HRS. NO. OF VISITS 1 CONTINUED ☒

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JOB NO. 55213.00311

DATE 10/21/05

PROJECT 6A Restoration

TO

SUBJECT Daily Field Report # 6

BY

EQUIPMENT IN USE:

Arrived:

From across the street.

At both fill locations, the fill is being placed on a level surface and is being benched into the uphill side

Departed:

Attachments: Test locations

Initials: JcP

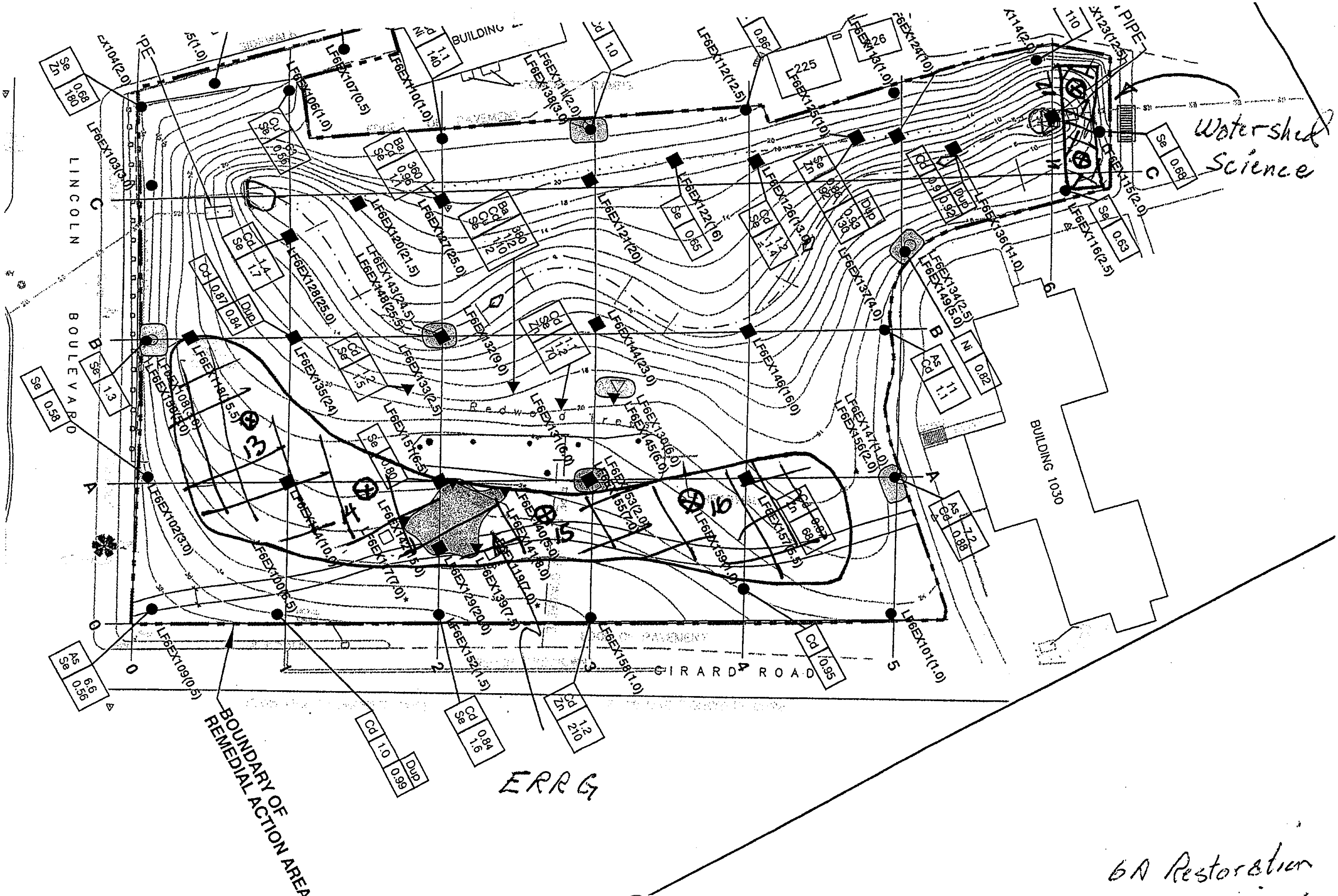

Figure Not To Scale - Schematic Only

6A Restoration
Test locations
10/21/03

MACTEC

DAILY FIELD REPORT

JOB NO. 55213.00311
PAGE 1 OF

PROJECT NAME: 6A Restoration	CLIENT OR OWNER: Presidio Trust	DAILY FIELD REPORT SEQUENCE NO.: 7
GENERAL LOCATION OF WORK: Site 6A	OWNER OR CLIENT'S REPRESENTATIVE: George Forde	DATE: 10/24/05 — DAY OF WEEK: Monday
	GRADING CONTRACTOR: ERRG	PROJECT ENGINEER: Jim Henderson
TYPE OF WORK: Grading	GRADING CONTRACTOR'S SUPERINTENDENT OR FOREMAN:	
SOURCE AND DESCRIPTION OF FILL MATERIAL (IMPORT OR SITE)	WEATHER: Cool & Fog	TECHNICIAN: Joe Phelby

DESCRIBE EQUIPMENT USED FOR HAULING, SPREADING, WATERING, CONDITIONING, AND COMPACTING

TEST NUMBER	TEST LOCATION	ELEV (feet)	FIELD TESTING: DRY DENSITY lbs/cu. ft.	MOISTURE CONTENT %	% OF MAXIMUM DRY DENSITY	REFERENCE CURVE: COMP CURVE NO.	MAXIMUM DRY DENSITY lbs/cu. ft.	OPTIMUM MOISURE CONTENT %	COMMENTS
17	See map		119.9	14.4	98		123	10	
18			122.1	13.6	99		123	10	
19			120.6	14.2	98		123	10	

UNSATISFACTORY CONDITIONS PREVIOUSLY REPORTED (Give report date)

NOTES (Describe work completed during the day, any problems and their solutions.)

ERRG has placed and compacted about a foot of material since my last site visit, three satisfactory density tests were performed. They have stopped hauling from across the street. That material is now being tested for pesticides and if any are found the fill might have to be removed (per Gary, foreman for ERRG)

New material, a clean sand is being imported from Crissy Field and is being stockpiled at the south end of the fill site. A bulk was collected for a compaction curve.

TIME BILLED 3 HRS., NO. OF VISITS 1, CONTINUED ☐

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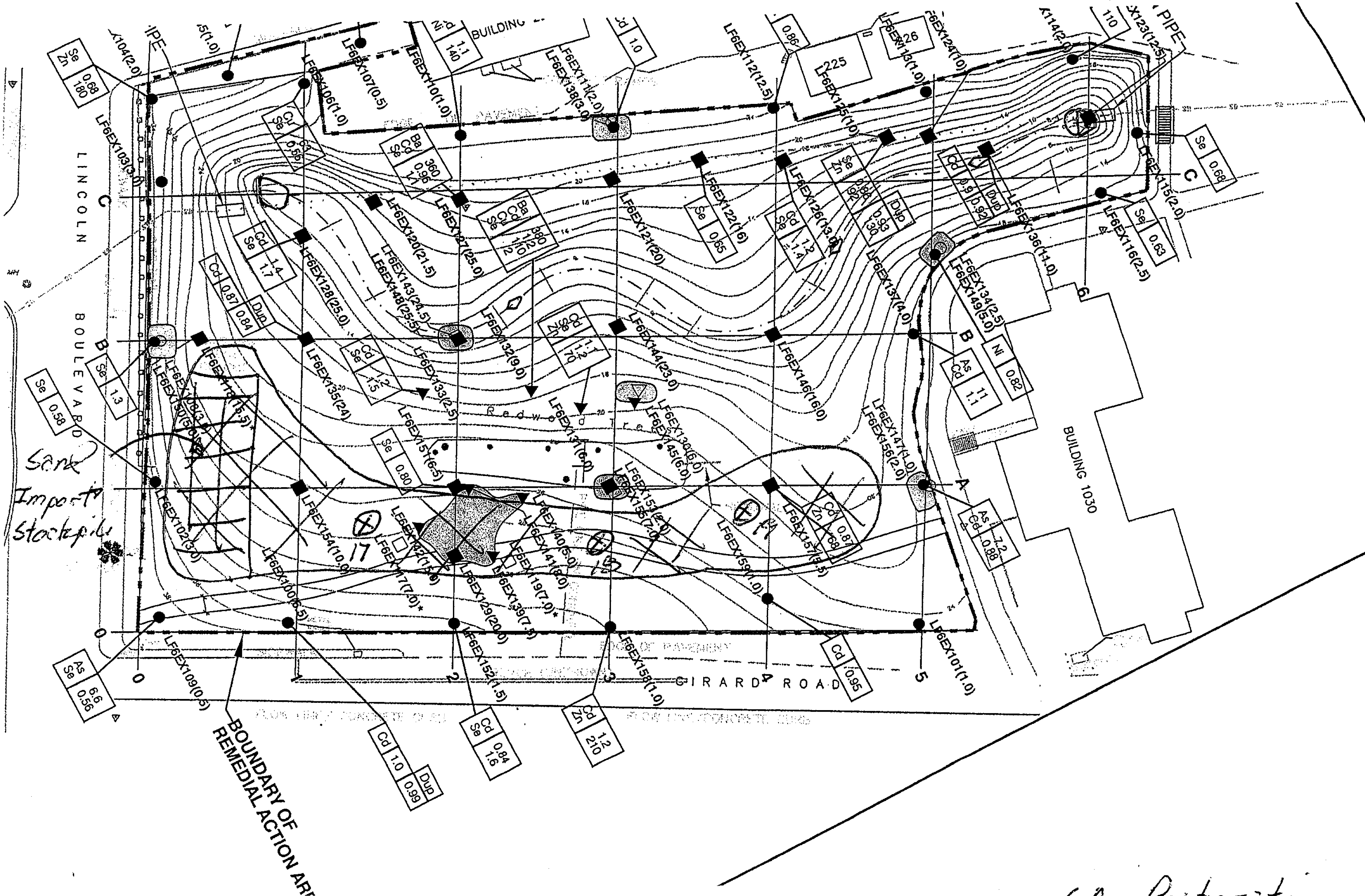

Figure Not To Scale - Schematic Only

6A Restoration
Test Locations
10/24/05

MACTEC Engineering & Consulting

SHEET 1 OF

JOB NO. 55213.00311

DATE 10/25/05

PROJECT GA Restoration

TO Jim Henderson

SUBJECT Daily Field Report # 8

BY Joe Phaby

EQUIPMENT IN USE:

Arrived:

ERRG is not working today, all equipment is parked.

Watershed is not placing any fill although, they are stockpiling saturated material excavated from the Creek Channel at the base of the cut slope below building 222 (see map). The water content of this soil must be drastically reduced before it can be placed and compacted as fill.

Rain is in the forecast for tonight and tomorrow watershed will be getting the site ready to drain and reduce erosion.

Departed:

Attachments:

Initials: GAL 10/31/05

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APPENDIX H

WELL BORING LOGS AND COMPLETION DIAGRAMS

Equipment

Sample Method: Hollow Stem Auger

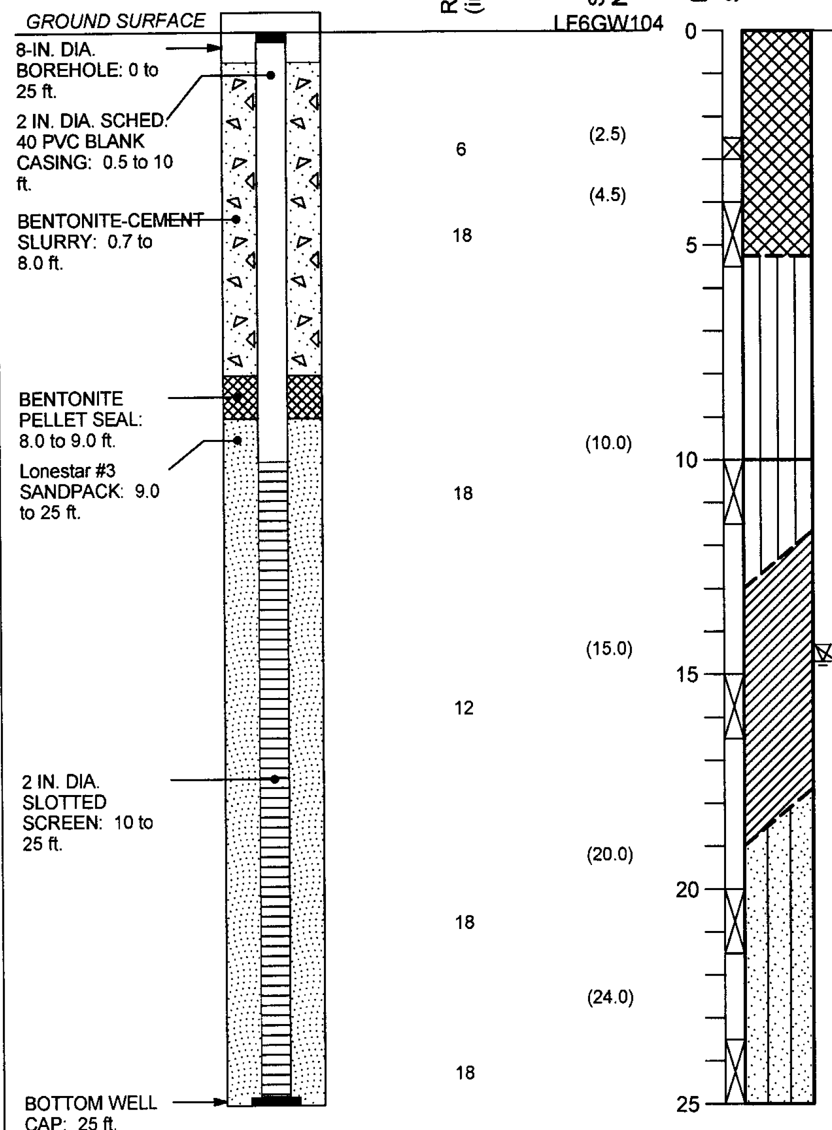
Hole Diameter: 8 in.

Surface Elevation:

Date: 11/16/05

Reference Datum:

Logged By: Lyz Cullmann



Recovery (inches)	Sample Number
	LF6GW104
6	(2.5)
18	(4.5)
18	(10.0)
12	(15.0)
18	(20.0)
18	(24.0)

DARK YELLOWISH BROWN POORLY-GRADED SAND (SP) (10YR 4/4) Loose, moist, 100% sand (Fill)

DARK YELLOWISH BROWN SANDY SILT (ML) (10YR 3/6) Firm, moist, 60% silt, 40% sand, low plasticity (Native)

@ 10 ft.: Decrease in silt to 55%

DARK YELLOWISH BROWN SANDY LEAN CLAY (CL) (10YR 3/6) Firm, moist, 65% clay, 35% fine to medium-grained sand, medium plasticity (Native)

@ 14.5 ft.: Groundwater encountered.

DARK YELLOWISH BROWN SILTY SAND (SM) (10YR 3/6) Medium dense, wet, 75% fine to medium-grained sand, 20% silt (Native)

@24 ft: Increase in sand to 85%

Bottom of well at 25 ft.

BORING_WELL_MACTEC 5521300312_PRESIDIO.GPJ GEOL.GDT 7/7/06

MACTEC

Well Construction Details and Log of Boring LF6GW104

Presidio of San Francisco, California

PLATE **H-1**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
	55213 00312	GAL	7/06	May	

Equipment

Sample Method Hollow Stem Auger

Hole Diameter 8 in.

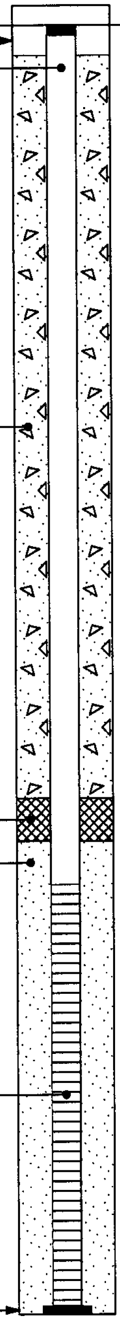
Surface Elevation

Date 11/16/05

Reference Datum

Logged By Lyz Cullmann

GROUND SURFACE



8-IN. DIA. BOREHOLE: 0 to 30 ft.

2 IN. DIA. SCHED. 40 PVC BLANK CASING: 0.5 to 20 ft.

BENTONITE-CEMENT SLURRY: 0.7 to 18.0 ft.

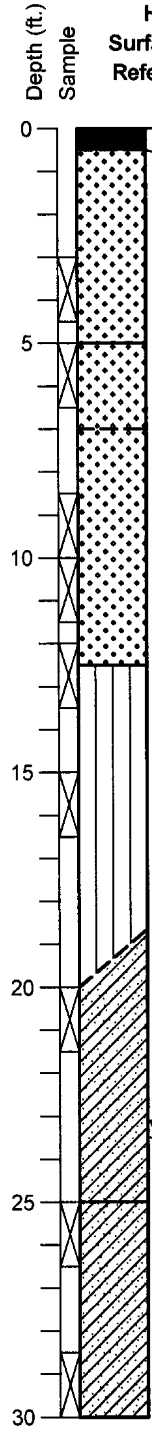
BENTONITE PELLET SEAL: 18.0 to 19.0 ft.

Lonestar #3 SANDPACK: 19.0 to 30 ft.

2 IN. DIA. SLOTTED SCREEN: 20 to 30 ft.

BOTTOM WELL CAP: 30 ft.

Recovery (inches)	Sample Number
	LFGW1-5
	(4.0)
18	
	(6.5)
18	
	(10.0)
18	(11.5)
18	
	(13.0)
18	
	(16.0)
18	
	(21.0)
18	
	(26.0)
18	
	(29.5)
18	



Asphalt at surface

DARK OLIVE-BROWN WELL-GRADED SAND WITH GRAVEL (SW) (2.5Y 3/3) Medium dense, dry, 85% sand, 15% gravel comprised of chert and brick (Fill)

Sand is loose and gravel comprises sandstone and concrete fragments (fill)

Sand is medium dense

DARK YELLOWISH BROWN SANDY SILT (ML) (10YR 3/4) Medium dense, moist, 75% silt, 25% fine-grained sand, low plasticity (Native)

DARK YELLOWISH BROWN CLAYEY SAND (SC) (10YR 4/6) Medium dense, wet, 85% fine to medium-grained sand, 40% clay, medium plasticity (Native)

@ 23.5 ft.: Groundwater encountered.

DARK YELLOWISH BROWN SAND WITH CLAY (SC) (10YR 4/6) Soft, saturated, 85% medium-grained sand, 15% clay

Bottom of Well at 30 ft.

BORING_WELL_MACTEC 5521300312_PRESIDIO.GPJ GEOL.GDT 7/7/06

MACTEC

Well Construction Details and Log of Boring LF6GW105

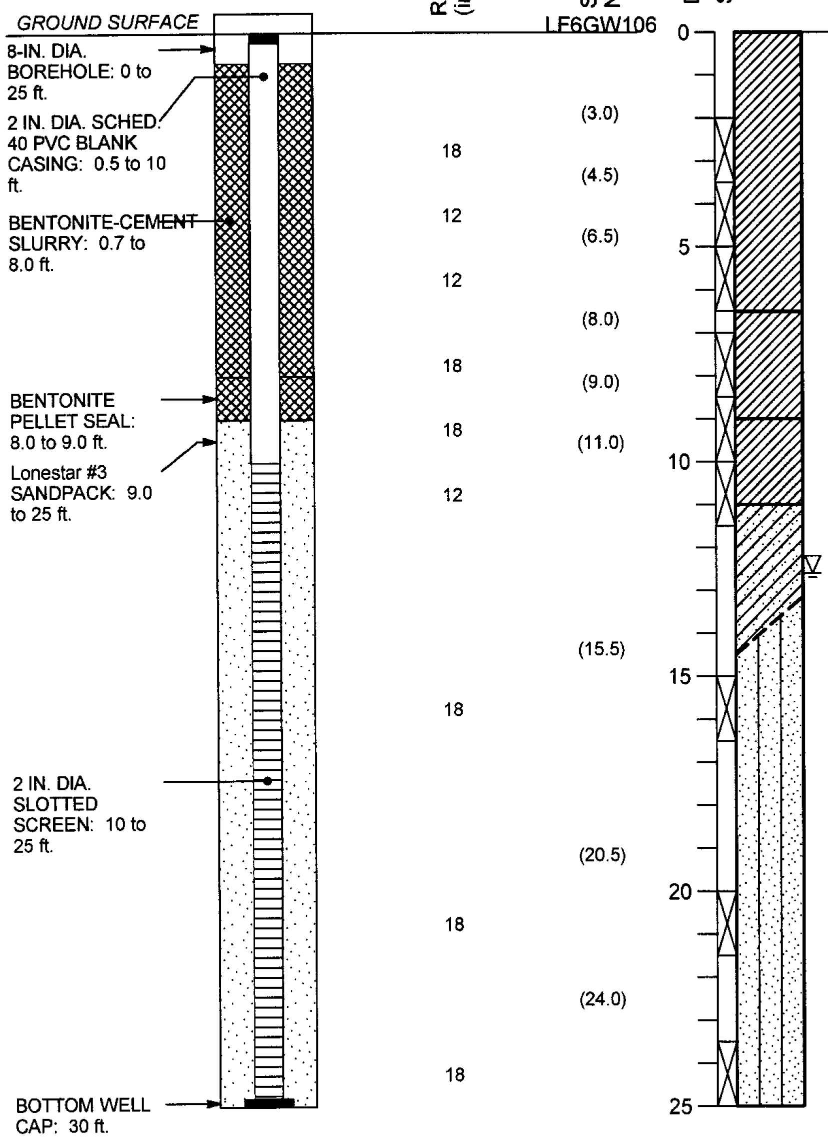
Presidio of San Francisco, California

PLATE

H-2

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
	55213 00312	GAL	7/06	Mag	

Equipment
Sample Method Hollow Stem Auger
Hole Diameter 8 in.
Surface Elevation
Date 11/17/05
Reference Datum
Logged By Lyz Cullmann



DARK BROWN SANDY LEAN CLAY (CL) (10YR 3/3) Medium dense, moist, 60% clay, 40% fine-grained sand, trace of asphalt and concrete, low plasticity (Fill)

DARK YELLOWISH BROWN SANDY LEAN CLAY (CL) ((10YR 3/6) Dense, moist, 65% clay, 35% fine-grained sand (Fill)

Decrease clay to 55%

DARK YELLOWISH BROWN CLAYEY SAND (SC) (10YR 3/6) Dense, moist, 55% fine to medium-grained sand, 45% clay, medium plasticity (Native)

DARK YELLOWISH BROWN SILTY SAND (SM) (10YR 3/6) Medium dense, wet, 70% fine to medium-grained sand, 30% silt (Native)

Bottom of Well at 25 ft.

BORING_WELL_MACTEC 5521300312_PRESIDIO.GPJ GEOL.GDT 7/7/06

MACTEC

Well Construction Details and Log of Boring LF6GW106

Presidio of San Francisco, California

PLATE **H-3**

DRAWN	JOB NUMBER	CHECKED	CHCK'D DATE	APPROVED	APPRV'D DATE
	55213 00312	GAL	7/06	MAJ	

Kamman Hydrology & Engineering, Inc.
7 Mt. Lassen Drive, Suite B-250, San Rafael, CA 94903
Telephone: (415) 491-9600
Facsimile: (415) 680-1538
E-mail: info@KammanHydrology.com

April 14, 2006

Mr. Mark Frey
The Presidio Trust
34 Graham Street
San Francisco, CA 94129

Subject: Piezometer Installation and Monitoring: Fill Site 6A
The Presidio Trust, San Francisco, CA

Dear Mark:

This letter report presents the results of piezometer installation and cross-sectional piezometer/vegetation transect surveys within the Fill Site 6A (FS6A) restoration site. This work was completed pursuant to PO Number 4998 between Kamman Hydrology & Engineering, Inc. (KHE) and The Presidio Trust. The main activities completed as part of this work included piezometer installation, transect surveys through piezometer alignments and perpendicular to the restored creek channel; and a first round of groundwater monitoring of site wells. The following sections present the information and results of this investigation.

1.0 Piezometer Installation

The purpose for piezometer installation was to monitor and characterize hydrologic conditions beneath selected riparian vegetation zones within the restored FS6A corridor as part of project revegetation planning and assessment efforts. On November 18, 2005, Greg Kamman of KHE and Mark Frey of The Presidio Trust completed a site reconnaissance to identify piezometer installation locations. Piezometers were located based on the existing remediation wells and proposed vegetation monitoring transects. The location of piezometers installed as part of this study (LF6PZ101 through LF6PZ106) are indicted on Figure 1. The location of wells installed by The Presidio Remediation program within the former FS6A site (LF6GW104 and LF6GW106) are also indicated on Figure 1. The location of these monitoring points are based on a survey completed by The Presidio Trust Remediation Department. It should be noted that the background map and contours provided on Figure 1 are from the a proposed creek restoration project design prepared by KHE in the spring of 2003 as part of the Tennessee Hollow Watershed Project and is not an accurate representation of the existing post-project creek alignment and grades. The well locations and transect alignments are located accurately based on field survey information.

KHE installed the six (6) piezometers on December 7, 2005. All piezometers were installed using a 3.5-inch diameter hand auger in borings advanced to a maximum of 10-feet in depth. Auger cuttings were observed in 0.5-foot intervals. Lithologic boring logs were prepared based on these samples pursuant to the Unified Soil Classification System. Piezometers were constructed using 5-foot long 2-inch diameter PVC well screen (0.010 slot size) followed with a 5-foot long solid riser casing. Both the top and bottom of the piezometers were fitted with threaded end caps. The filter pack consisted of RMC #2/12 sand opposite the well screen to a depth of 2-feet below the ground surface. The upper 2-feet of annular space was filled with bentonite chips. Small vent holes were drilled in the side of each threaded end cap to allow piezometer equilibration with the atmosphere. Boring logs and piezometer completion reports for the piezometers are attached to this letter report.

2.0 Piezometer/Vegetation Transect Surveys

On February 9, 2006, KHE completed 2 cross-sectional surveys along selected piezometer alignments. Transect A was aligned through wells/piezometers (from west to east) LF6GW106, LF6PZ106, LF6PZ105, and LF6GW104 while Transect B was aligned through LF6PZ104, LF6PZ103, and LF6PZ102. Surveys were oriented perpendicular to the main restored creek channel alignment and extend across the majority of the project site. Transect locations are indicated on Figure 1. In addition to the Transects, a longitudinal profile of the creek thalweg[1] was surveyed from inlet to outlet culverts.

Topographic leveling was completed at intervals along each cross-section using a Leica GeoSystems-brand total station and prism reflector target. Intervals were selected to capture breaks in slope and important channel morphologic features along each transect. The surveys are tied to the NAVD88 datum. Also, as part of this survey, creek water level staff plates were installed in the creek channel along Transect A and B as well as at the downstream (northern) end of the project reach immediately adjacent to LF6PZ101. Staff plates were secured to T-posts driven into the creek bed and surveyed so that all future water level measurements can be converted to the NAVD88 datum.

Transect and longitudinal profiles are presented in Figures 2 through 4. Well and staff plate locations are also indicated on these profiles along with projected groundwater and creek water levels (discussed in the next Section of this report).

3.0 Shallow Groundwater Monitoring

During the February 9, 2006 survey, KHE staff collected depth-to-groundwater measurements in order to calculate groundwater surface elevations. Water level readings from installed staff plates were also collected. These data and calculations are tabulated on Table 1. All future groundwater measurements will be completed by Trust staff. Long-term monthly measurements are recommended for comparison to future vegetation zones.

Water surface profiles for Transect A and B are presented on Figures 2 and 3, respectively. The groundwater table surface depicted on Figure 2 (Transect A) indicates groundwater is recharging the creek. There appears to be an abnormal mound in the water table surface centered on piezometer LF6PZ105. This mounding likely represents and area receiving outfall from the adjacent subsurface drainage system immediately north of the piezometer and/or seepage introduced from a sewer lateral outfall to the north of the piezometer.

The groundwater table surface at Transect B is quite unexpected. It was anticipated that the groundwater table surface beneath piezometers LF6PZ102 through 104 would mimic that water table surface observed lying to the west of the creek in Transect A. At first it was suspected that the water surface elevations for LF6PZ104 and LF6PZ102 had inadvertently been reversed – a result of field recording error. However, this mistake was ruled out based on the chronology of notes and associated recorded survey points. Thus, it is suspected that the abnormal mounding in the water table centered on piezometer LF6PZ102 is again due to an area receiving subsurface discharge from a buried drainage/sewer pipe. Confirmatory water level measurements and review of utility drawings and project as-built plans should be completed to further evaluate the cause for this anomalous feature.

---

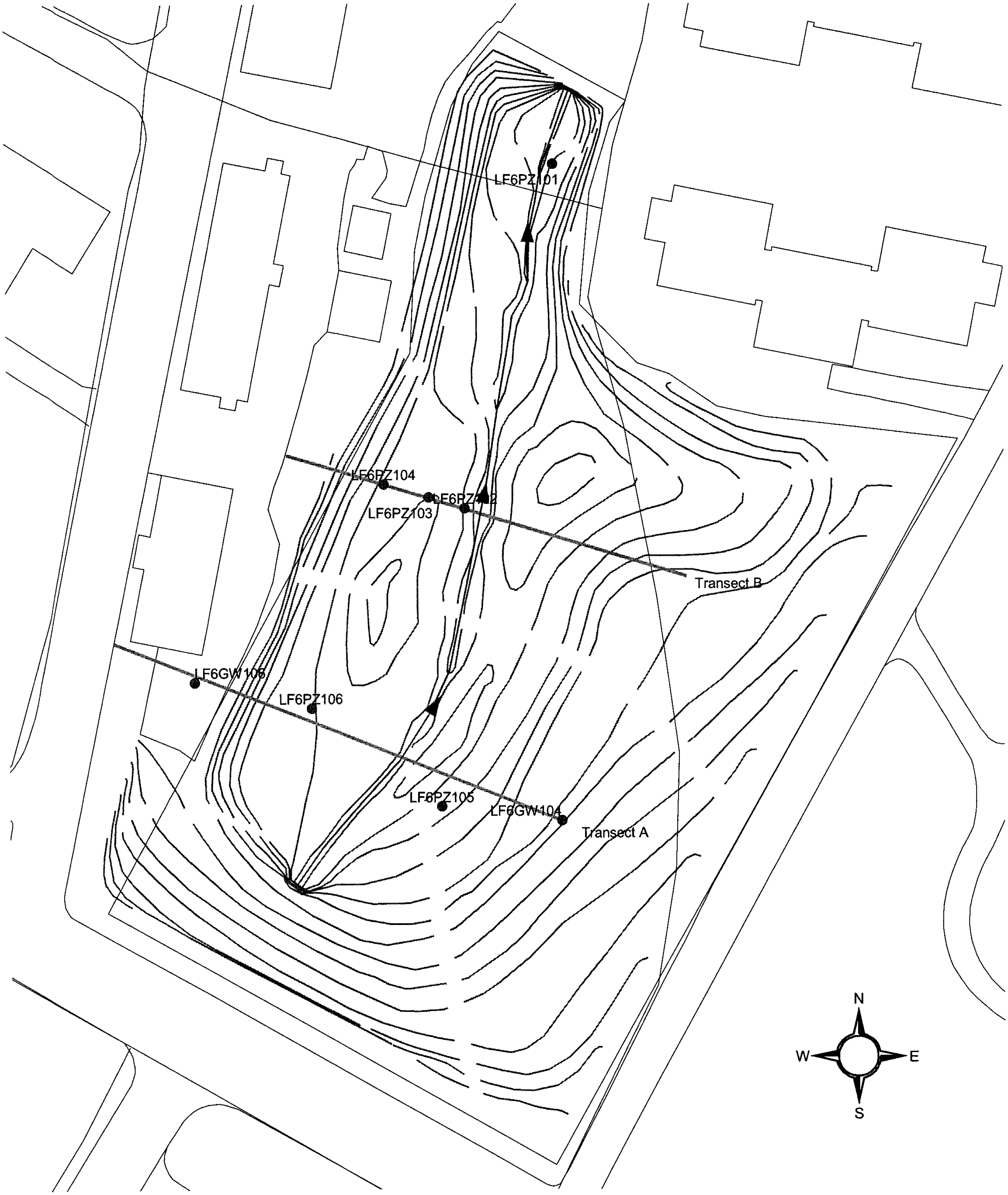
[1] A channel thalweg is defined as a line connecting the lowest (deepest) points along a streambed.

If you have any questions or concerns regarding the information presented herein, please call me.

Sincerely,

Greg Kamman
Principal Hydrologist

Attachments: Table 1
Figures 1 through 4
Attached Boring Logs and Piezometer Completion reports.



Piezometer/Well Locations

Survey Transect

0 200 Feet

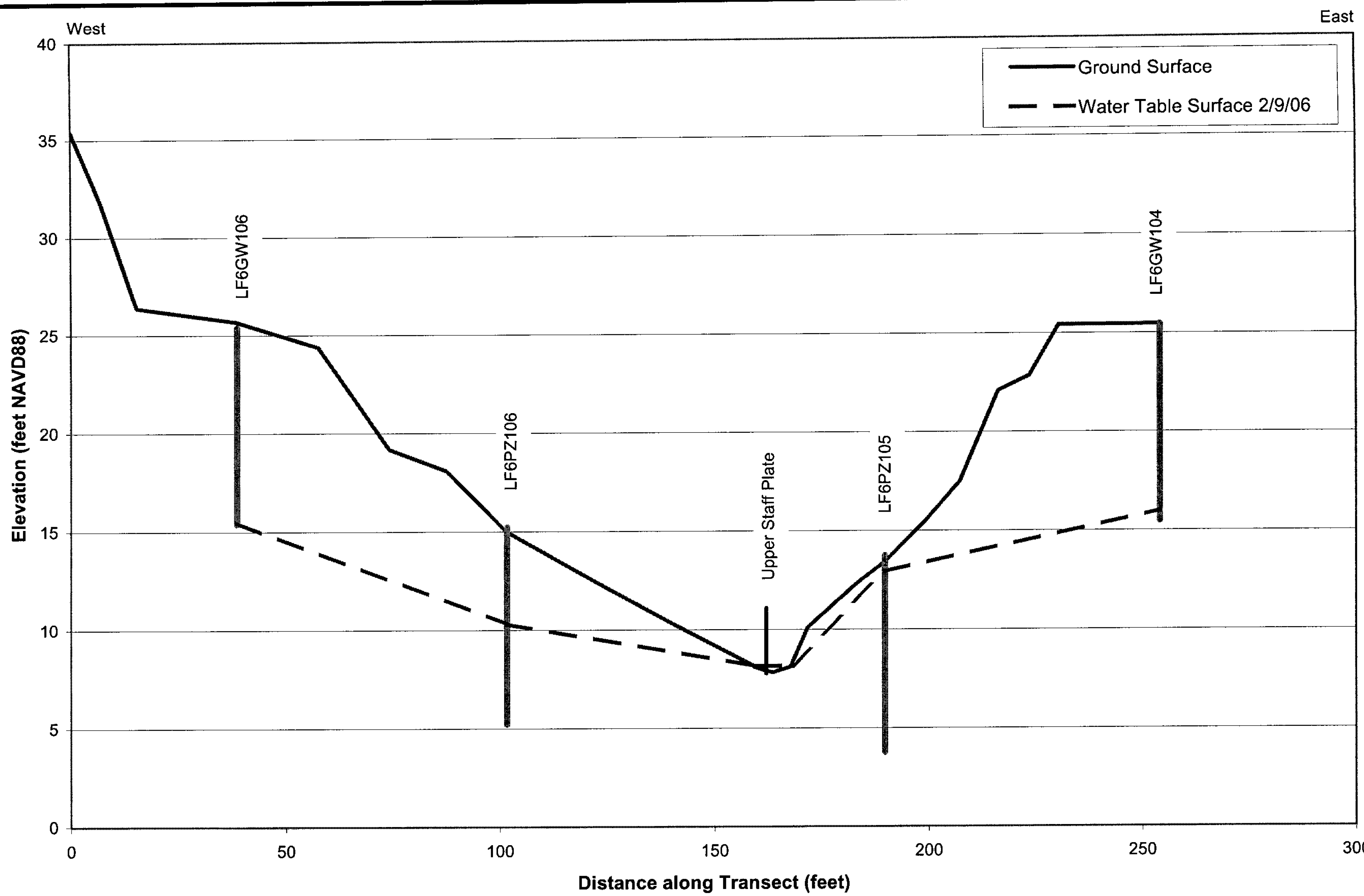
KAMMAN HYDROLOGY & ENGINEERING, INC.
101 Lucas Valley Road, Suite 120
San Rafael, CA 94903
(415) 491-9600

Piezometer Installation and Monitoring: Fill Site 6A
The Tennessee Hollow Watershed Project, The Presidio of San Francisco

SITE MAP

FIGURE

1



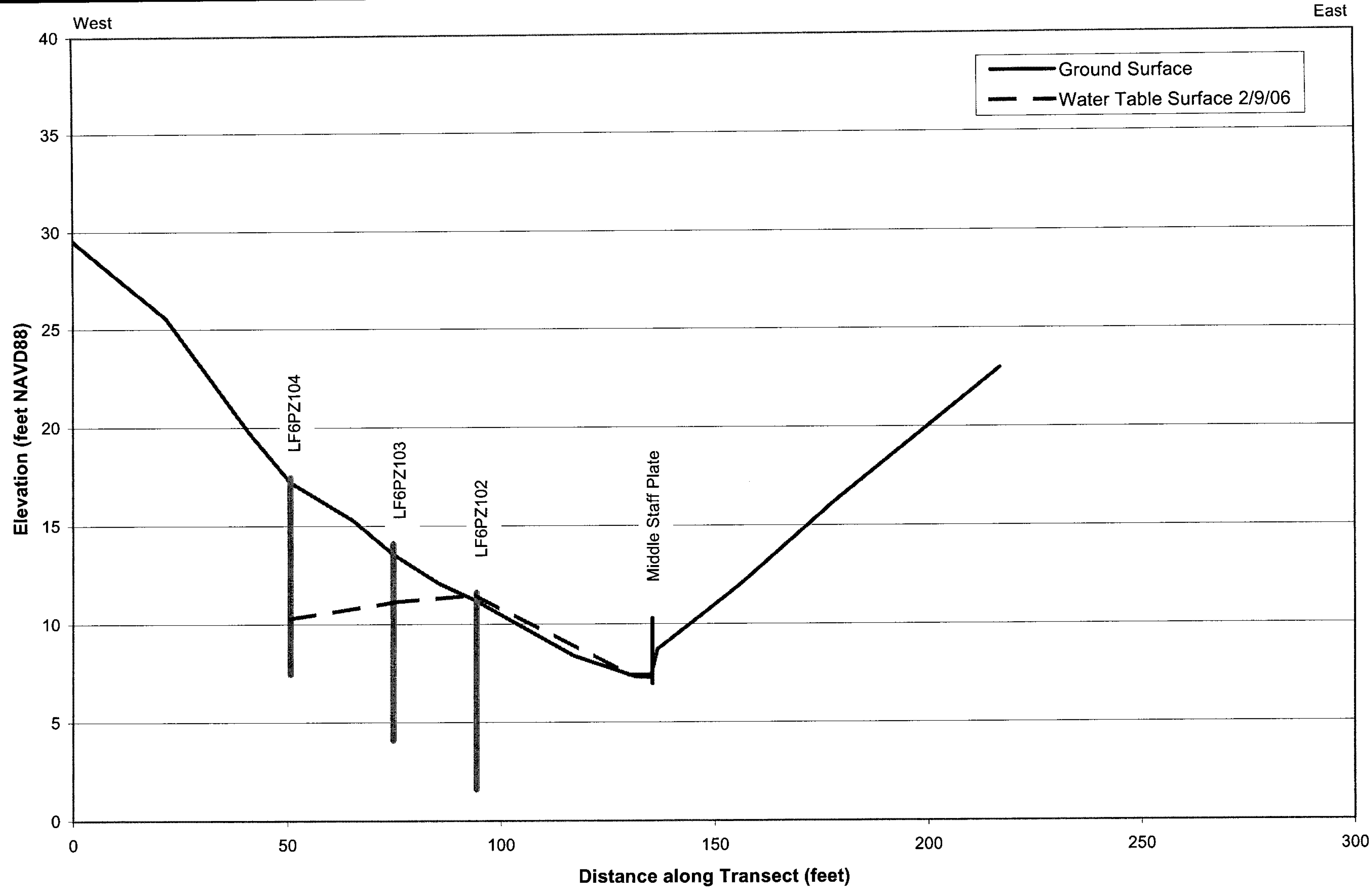
Kamman Hydrology & Engineering, Inc.

Piezometer Installation and Monitoring: Fill Site 6A Restoration
The Tennessee Hollow Watershed Project, The Presidio of San Francisco

Transect A

FIGURE 2

2-9-06_survey.xls,Figure 2



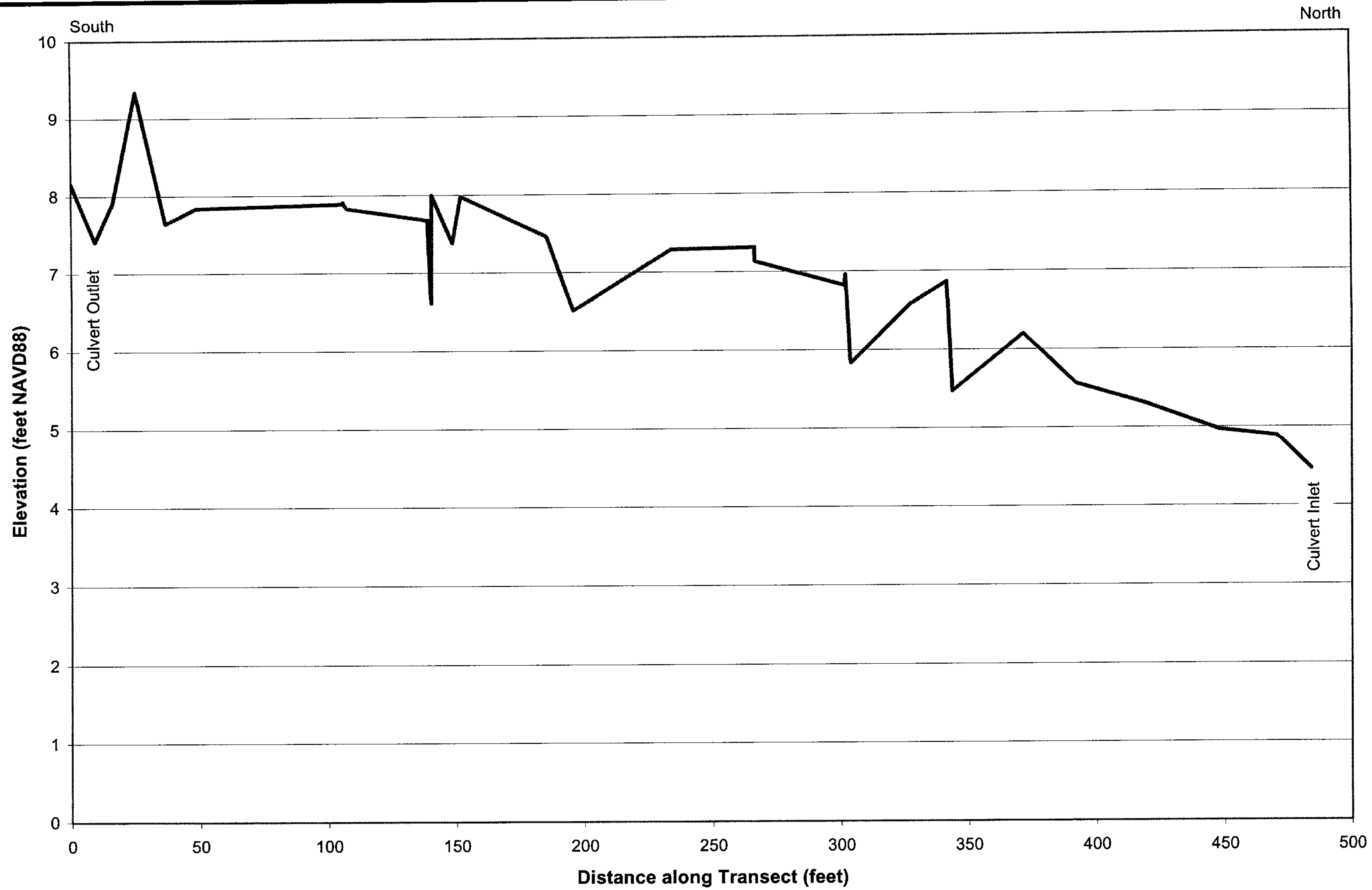
Kamman Hydrology & Engineering, Inc.

Piezometer Installation and Monitoring: Fill Site 6A Restoration
The Tennessee Hollow Watershed Project, The Presidio of San Francisco

Transect B

FIGURE
3

2-9-06_survey.xls,Figure 3



Kamman Hydrology & Engineering, Inc.

Piezometer Installation and Monitoring: Fill Site 6A Restoration
The Tennessee Hollow Watershed Project, The Presidio of San Francisco

Longitudinal Profile of Creek Channel

FIGURE 4

2-9-06_survey.xls,Figure 4

TABLE 1: HYDROLOGIC MONITORING DATA
Piezometer Installation and Monitoring: Fill Site 6A
The Tennessee Hollow Watershed Project, The Presidio of San Francisco

Piezometer/Well	Date	Time	DTW (ft)	TOC Elev. (ft NAVD88)	WS Elev. (ft NAVD88)
LF6GW104	2/9/2006	3:05	9.46	25.46	16.00
LF6GW106	2/9/2006	2:35	9.91	25.40	15.49
LF6PZ101	2/9/2006	3:50	0.80	10.44	9.64
LF6PZ102	2/9/2006	3:33	0.11	11.59	11.48
LF6PZ103	2/9/2006	3:30	2.97	14.09	11.12
LF6PZ104	2/9/2006	3:25	7.16	17.45	10.29
LF6PZ105	2/9/2006	2:50	0.81	13.74	12.93
LF6PZ106	2/9/2006	2:35	4.92	15.23	10.31

Staff Plate	Date	Time	Gauge Ht. (ft)	0.00-Gauge Elev. (ft NAVD88)	WS Elev. (ft NAVD88)
Upper Staff	2/9/2006	2:45	0.39	7.76	8.15
Middle Staff	2/9/2006	3:35	0.46	6.96	7.42
Lower Staff	2/9/2006	2:35	3.69	1.55	5.24

BORING LOG

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ101

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=10.44-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–1.5			SM	SILTY SAND: moist; mottled olive brown (2.5Y 4/4) to strong brown (7.5YR, 5/8); 70-75% fine to medium sand, 25-30% fines (silt>clay);(FILL MATERIAL)
1.5–4			SC	CLAYEY SAND: moist; brown (10YR 5/3); 70-75% fine sand, 25-30% fines (clay>>silt);low plasticity; coal slag observed at 2.5-feet
4–10	X (9.5–10)		SP-SM	SAND w/ SILT: moist; mottled strong brown (7.5YR 5/8) to brownish yellow (10YR 6/8); 85% fine grained sand, 15% fines (silt>clay); oxidized laminations (COLMA FM)
10–13				Bottom of Boring at 10.0-feet NOTE: collected soil sample from 9.5- to 10.0-foot horizon

BORING LOG

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ102

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=11.59-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–1			SM	SILTY SAND: moist; very dark greyish brown (2.5Y 3/2); 75% medium grained sand, 25% fines (clay=silt); few rock fragments of decomposed granite, pebbles, clay; coal/coal slag fragments (FILL MATERIAL)
1–10			SP-SM	SAND w/ SILT: moist to wet; mottled strong brown (7.5YR 5/8) to yellowish brown (10YR 5/6); 85% fine to medium grained sand, 15% fines (silt=clay); low plasticity; thin layers of clay interbedded with mottled sand; (COLMA FM)
3.5	∇			Wet at 3.5-feet
9.5–10	☒			
10–13				Bottom of Boring at 10.0-feet NOTE: collected soil sample from 9.5- to 10-foot horizon

BORING LOG

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ103

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=14.09-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–1			SM	SILTY SAND: moist; mottled light yellowish brown (10YR, 6./4) to strong brown (7.5YR 5/8); 75% fine sand, 25% fines (clay=silt); thin zones of highly plastic blue-grey bay mud-type clay (FILL MATERIAL)
1–3			CL	CLAY: moist; greyish brown (2.5Y 5/2); dense, bay mud-type clay
3–4	X (3.0–3.5)		SM	SILTY SAND: moist; mottled light yellowish brown (10YR, 6./4) to strong brown (7.5YR 5/8); 75% fine sand, 25% fines (clay=silt); low plasticity (FILL MATERIAL)
5	▽			Wet at 5.0-feet
4–10	X (9.0–9.5)		SP-SM	SAND w/ SILT: moist to wet; mottled strong brown (7.5YR 5/8) to yellowish brown (10YR 5/6); 85% fine to medium grained sand, 15% fines (silt=clay); notable alternating fine and medium grained sand layers; low plasticity (COLMA FM)
10–13				Bottom of Boring at 10.0-feet NOTE: collected soil samples from 3.0 to 3.5-foot and 9.0- to 9.5-foot horizons

BORING LOG

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ104

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=17.45-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–5.6			SM	SILTY SAND: moist; strong brown (4.5YR, 5./6); 75% fine sand, 25% fines (clay=silt); very low plasticity; brick fragments, coal/coal slag, occasional fine gravel, blue-grey bay mud-type clay (FILL MATERIAL) Color change to very dark grey (2.5Y, 3/1); thin clay layers Color change to dark yellowish brown (10YR, 4/4)
5.6–6.6			SC	CLAYEY SAND: moist; mottled greyish brown (2.5Y, 5/2) to strong brown (7.5YR 5/8); 75% fine sand, 25% fines (clay>>silt); increased density; moderate plasticity; oxidized laminations; white-flakes of 1- to 2-mm
6.6–10	▽ (8.5); X (9.5–10)		SP-SM	SAND w/ SILT: moist; mottled strong brown (7.5YR 5/8) to yellowish brown (10YR 5/6); 85% fine to medium grained sand, 15% fines (silt=clay); occasional 1/4-inch clay lense (COLMA FM) Wet at 8.5-feet
10–13				Bottom of Boring at 10.0-feet NOTE: collected soil sample from 9.5- to 10.0-foot horizon

BORING LOG

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ105

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=13.75-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–10			SP-SM	SAND w/ SILT: moist to wet; dark yellowish (10YR 4/6); 85% fine grained sand, 15% fines (silt=clay); very low plasticity; not much mottling; increased density and hardness with depth below 3.0-feet (COLMA FM)
3	∇			Wet at 3.0-feet
9–9.5	X			
10				Bottom of Boring at 10.0-feet
				NOTE: collected soil sample from 9.0- to 9.5-foot horizon

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

BORING LOG

KAMMAN HYDROLOGY &
ENGINEERING, INC.

Date: December 7, 2005

Boring Number: LF6PZ106

Logged by: Greg Kamman

Project/Number: 3033 FS6A Veg Monitoring

Driller: Not Applicable

Drilling Method: Hand Auger

Ground Surface Elevation: TOC=15.23-ft (NAVD88)

Sheet 1 of 1

DEPTH (feet)	SAMPLE	GRAPHIC LOG	USCS	DESCRIPTION
0–2.5			SP/CL	SAND/CLAY: moist; very dark brown; interbedded layers of sand and grey-green bay muc-type clay (FILL MATERIAL)
2.5–3.5			CL	CLAY: moist; greyish brown (2.5Y 5/2); dense, bay mud-type clay
3.5–6			SP-SC	SAND w/ CLAY: moist; mottled strong brown (7.5YR 5/8) to yellowish brown (10YR 5/6); 85% fine to medium grained sand, 15% fines (clay>>silt); low plasticity Wet at 6.0-feet
6–10	X (6.5–7.0); X (9.5–10)		SP-SM	SAND w/ SILT: wet; dark yellowish brown (10YR 4/4); 85 to 90% fine to medium grained sand, 10 to 15% fines (silt>clay); low plasticity; denser material below 7.5-feet; iron-oxide nodules; trace angular gravel (quartz); local horizons of oxidized material

Depth scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Bottom of Boring at 10.0-feet

NOTE: collected soil samples from 6.5 to 7.0-foot and
9.5- to 10-foot horizons

KAMMAN HYDROLOGY & ENGINEERING, INC.

WELL COMPLETION

Date: 12/7/05

Well I.D.: LF6 PZ101

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3 1/4-inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2-inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: ~10.94' NAVD 88

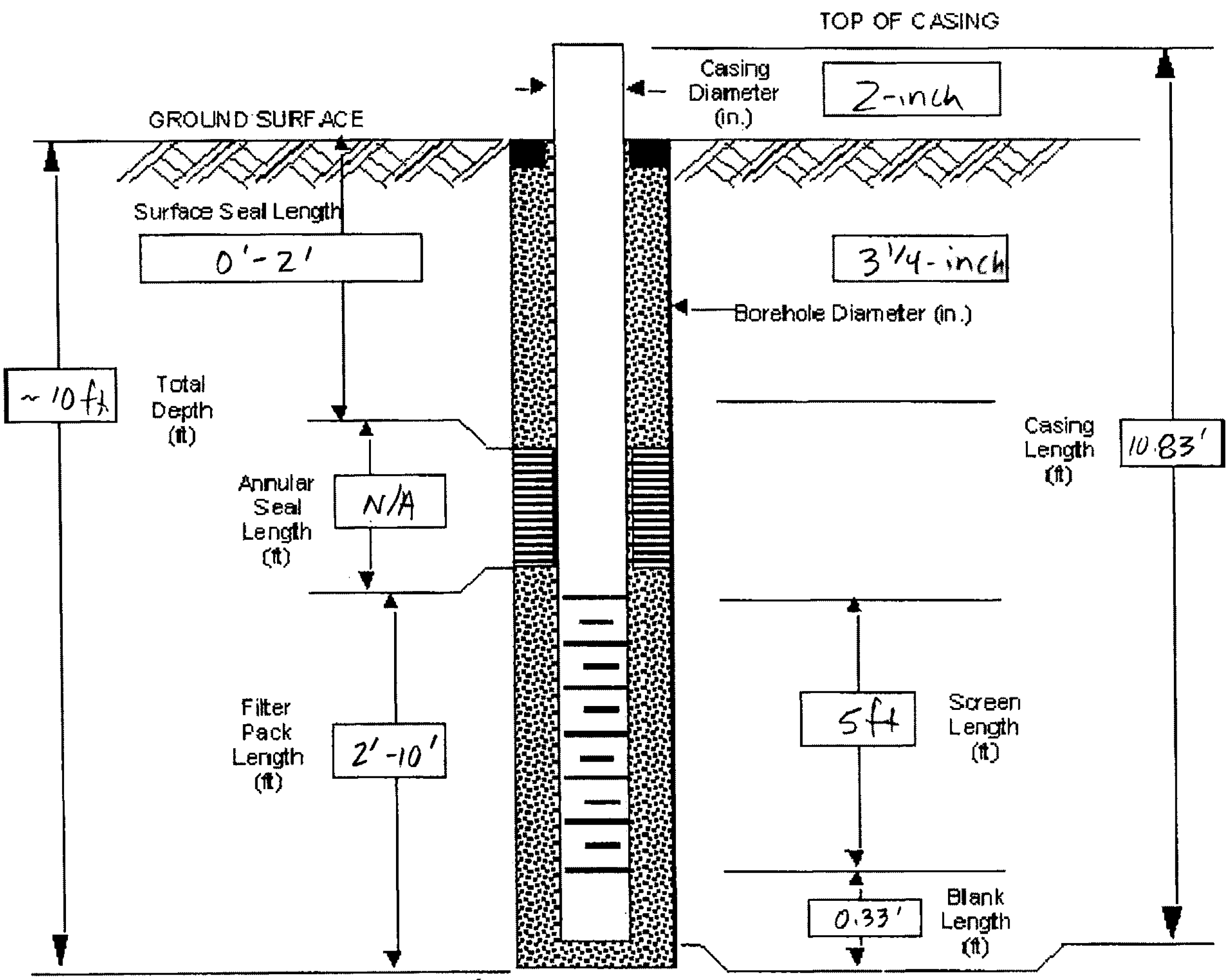
Annular Seal Material: bentonite chips

TOC Elevation: 10.44' NAVD88

Filter Pack Material/Size: RMC #2/12

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cam or endcap



Filter Pack Material RMC #2/12

WELL COMPLETION

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: 12/7/05

Well I.D.: LF6 PZ102

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3 1/4 - inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2-inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: 12.09' NAVD88

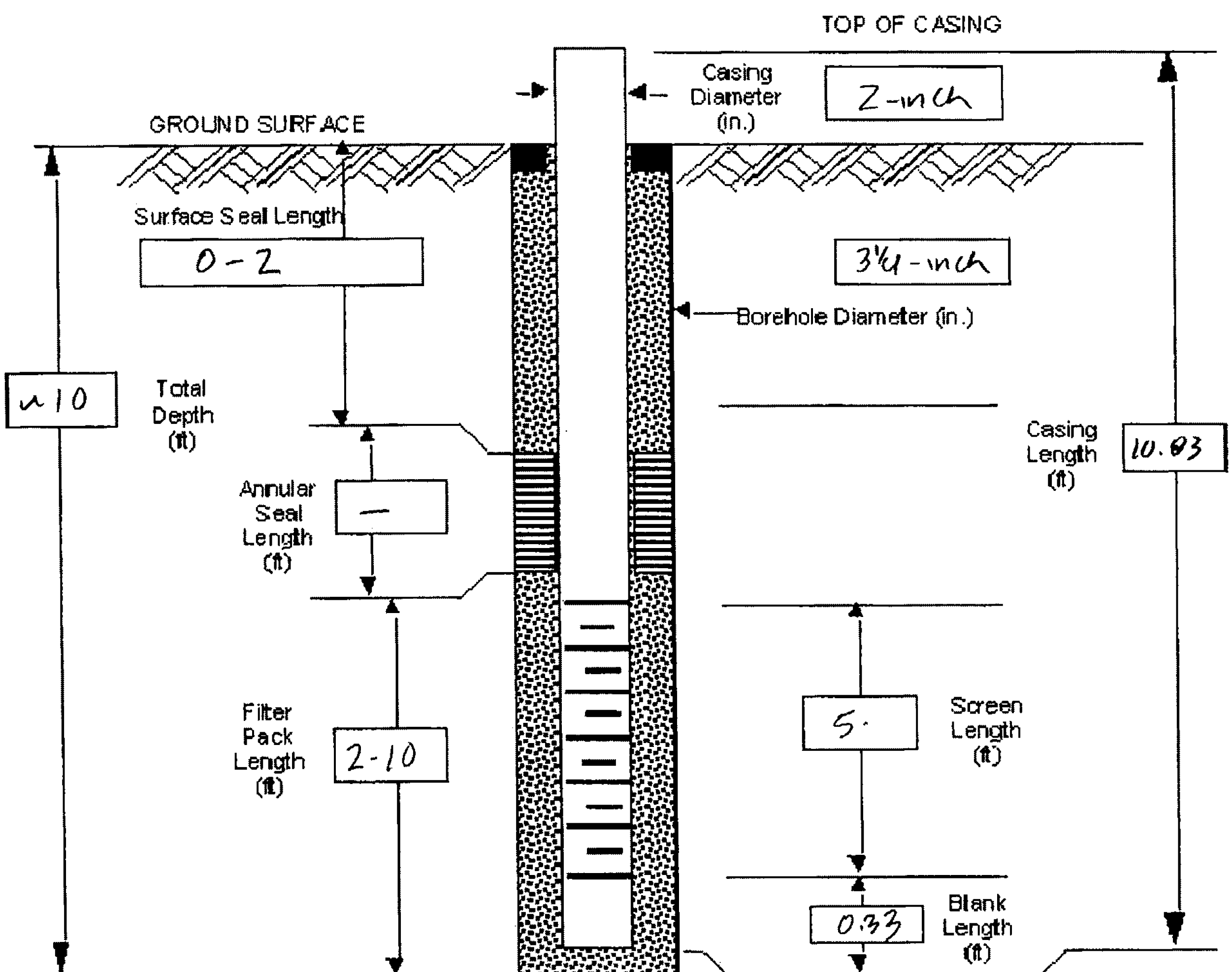
Annular Seal Material: bentonite chips

TOC Elevation: 11.59' NAVD 88

Filter Pack Material/Size: RMC #2/12

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cover or end-cap



Filter Pack Material RMC #2/12

WELL COMPLETION

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: 12/07/05

Well I.D.: LFG PZ103

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3 1/4-inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2-inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: ~14.59' NAVD88

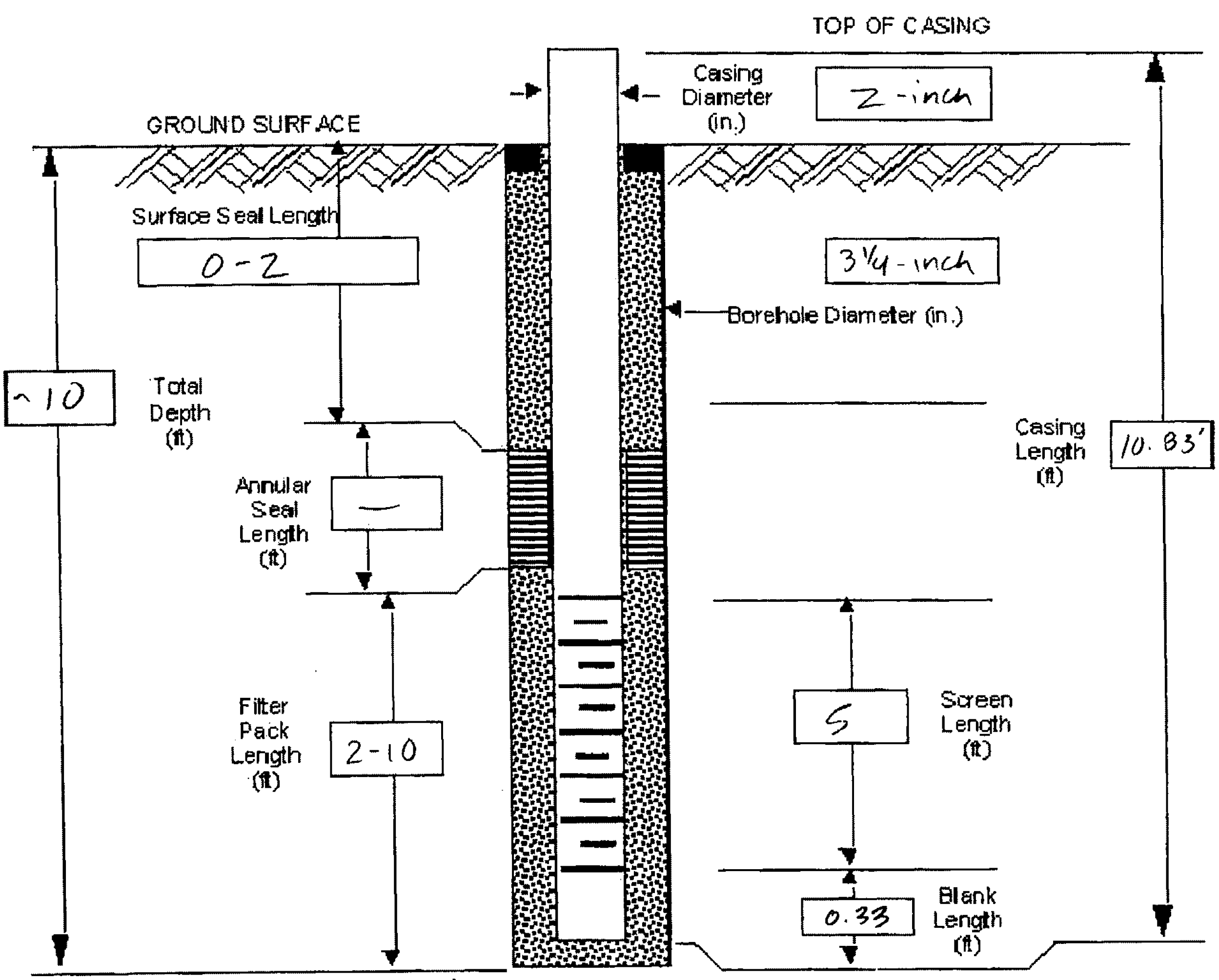
Annular Seal Material: bentonite chips

TOC Elevation: 14.09' NAVD88

Filter Pack Material/Size: RMC # 2/12

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cover or cap



Filter Pack Material RMC # 2/12

WELL COMPLETION

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: 12/7/05

Well I.D.: LFG PZ104

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3½-inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2-inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: ~ 17.95' NAVD 88

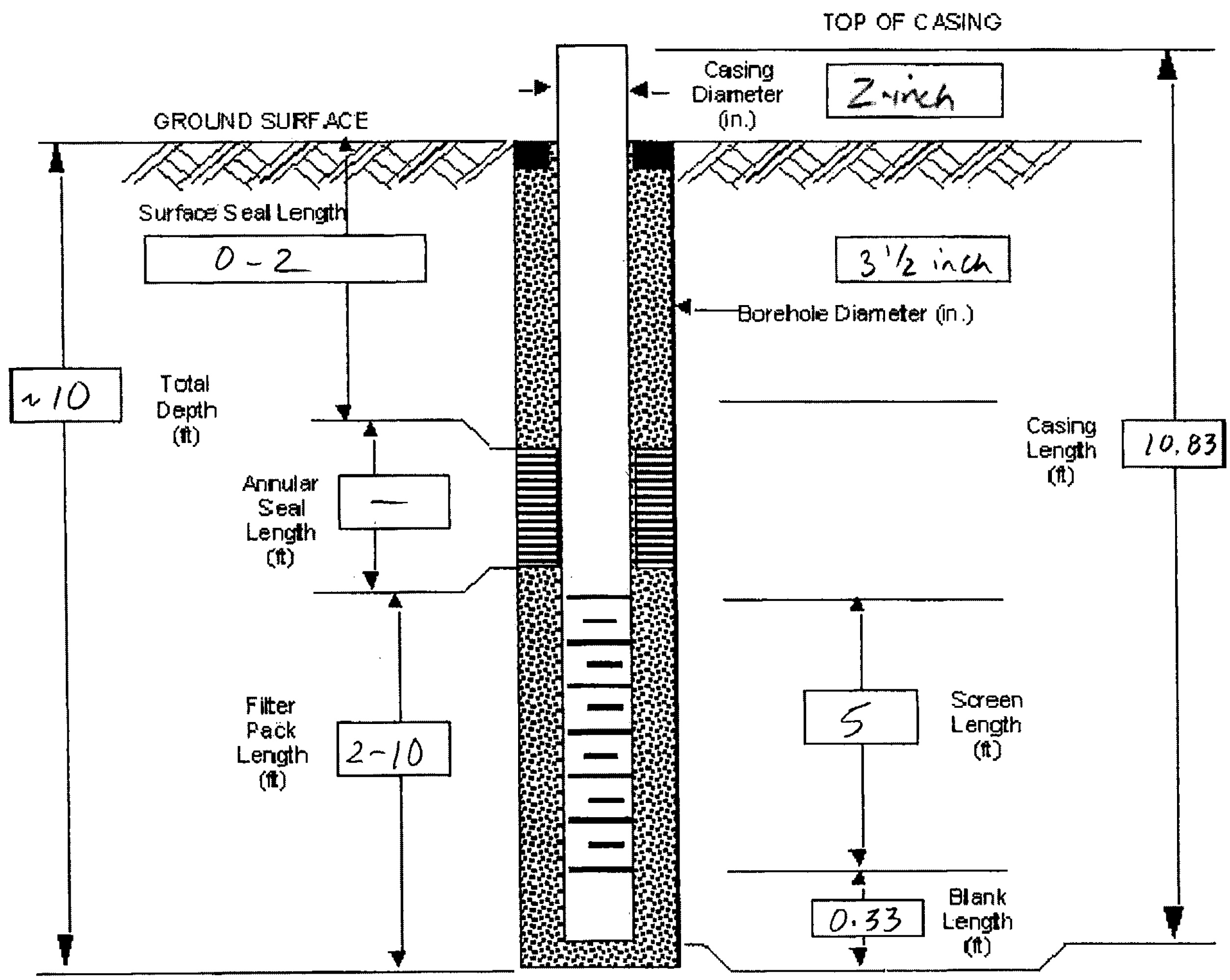
Annular Seal Material: bentonite chips

TOC Elevation: 17.45' NAVD 88

Filter Pack Material/Size: RMC #2/12 sand

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cover or cap



Filter Pack Material RMC #2/12 Sand

WELL COMPLETION

KAMMAN HYDROLOGY & ENGINEERING, INC.

Date: 12/7/05

Well I.D.: LF6 PZ 105

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3 1/4 - inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2-inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: 14.25' NAVD88

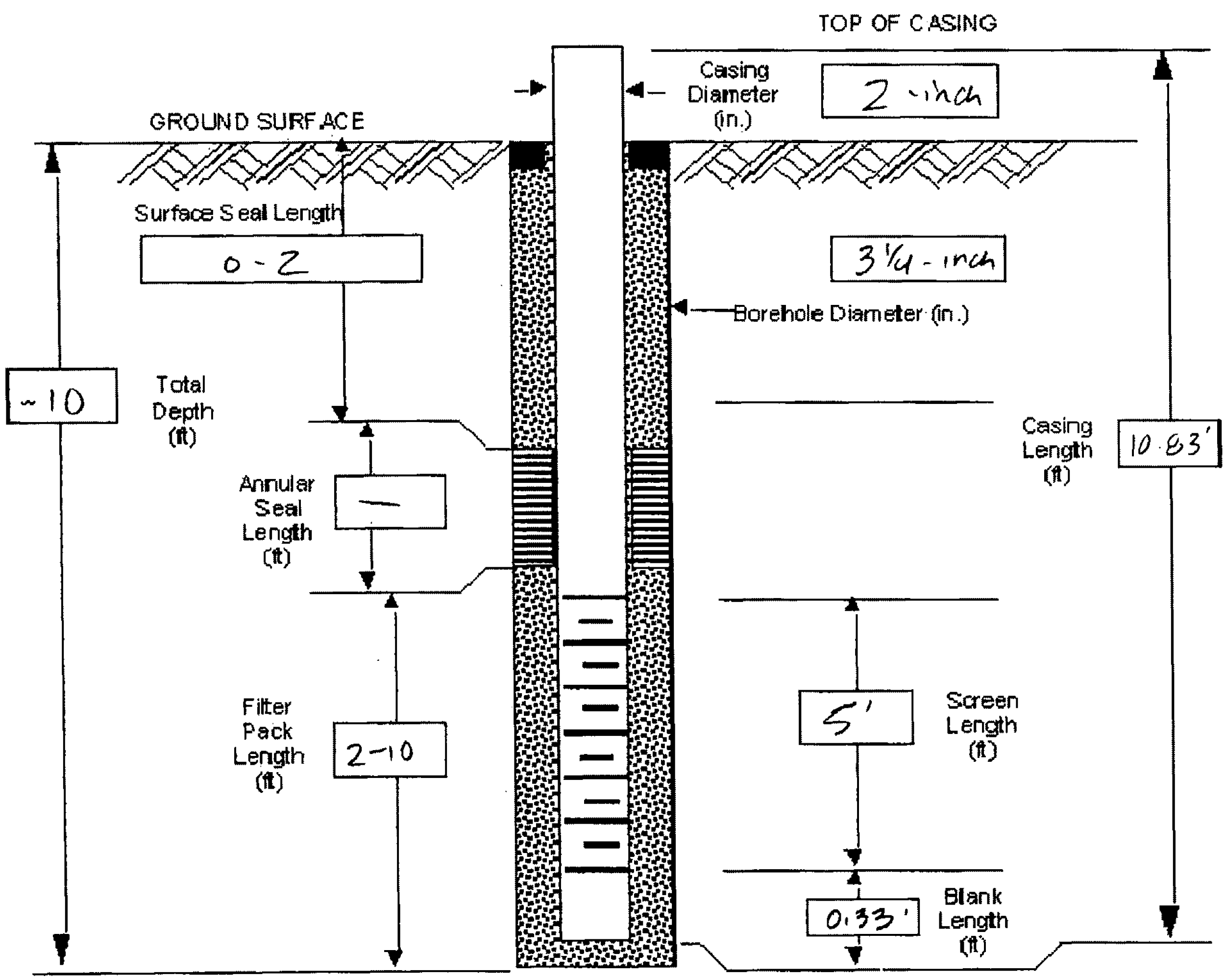
Annular Seal Material: bentonite chips

TOC Elevation: 13.75' NAVD88

Filter Pack Material/Size: RMC #2/12 Sand

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cover or cap



Filter Pack Material RMC #2/12 Sand

KAMMAN HYDROLOGY & ENGINEERING, INC.

WELL COMPLETION

Date: 12/7/05

Well I.D.: LF6 PZ 106

Geologist:: Greg Kamman

Project/Number: 3033

Driller: —

License Number: —

Drilling Method: Hand Auger

Borehole Diameter: 3 1/4-inch

Drilling Fluids Used: —

Estimated Amount: —

Casing/Screen Material: 2inch PVC

Screen Slot Size: 0.010

Surface Seal Material: —

Ground Elevation:: 15.73' NAVD88

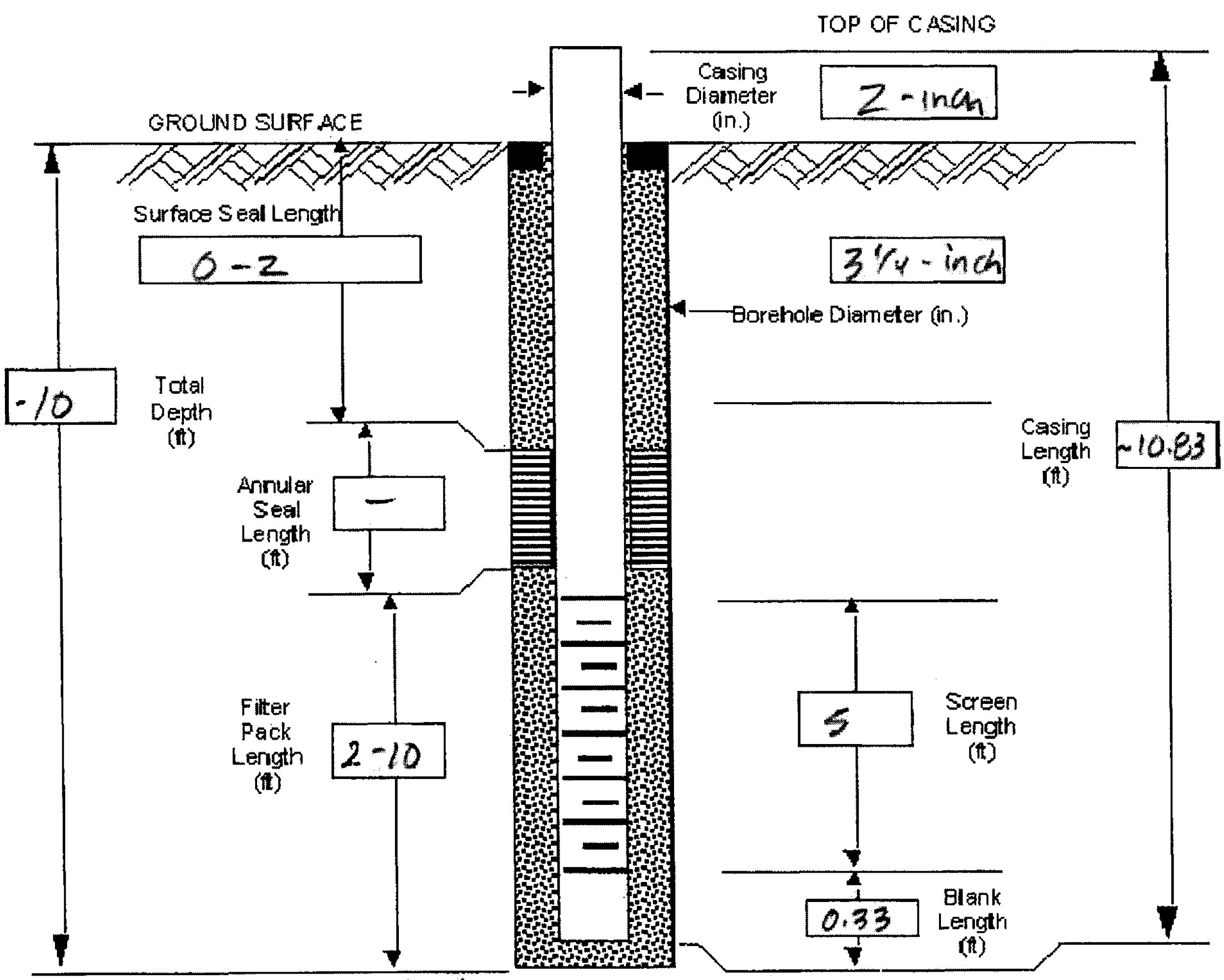
Annular Seal Material: bentonite chips

TOC Elevation: 15.23' NAVD88

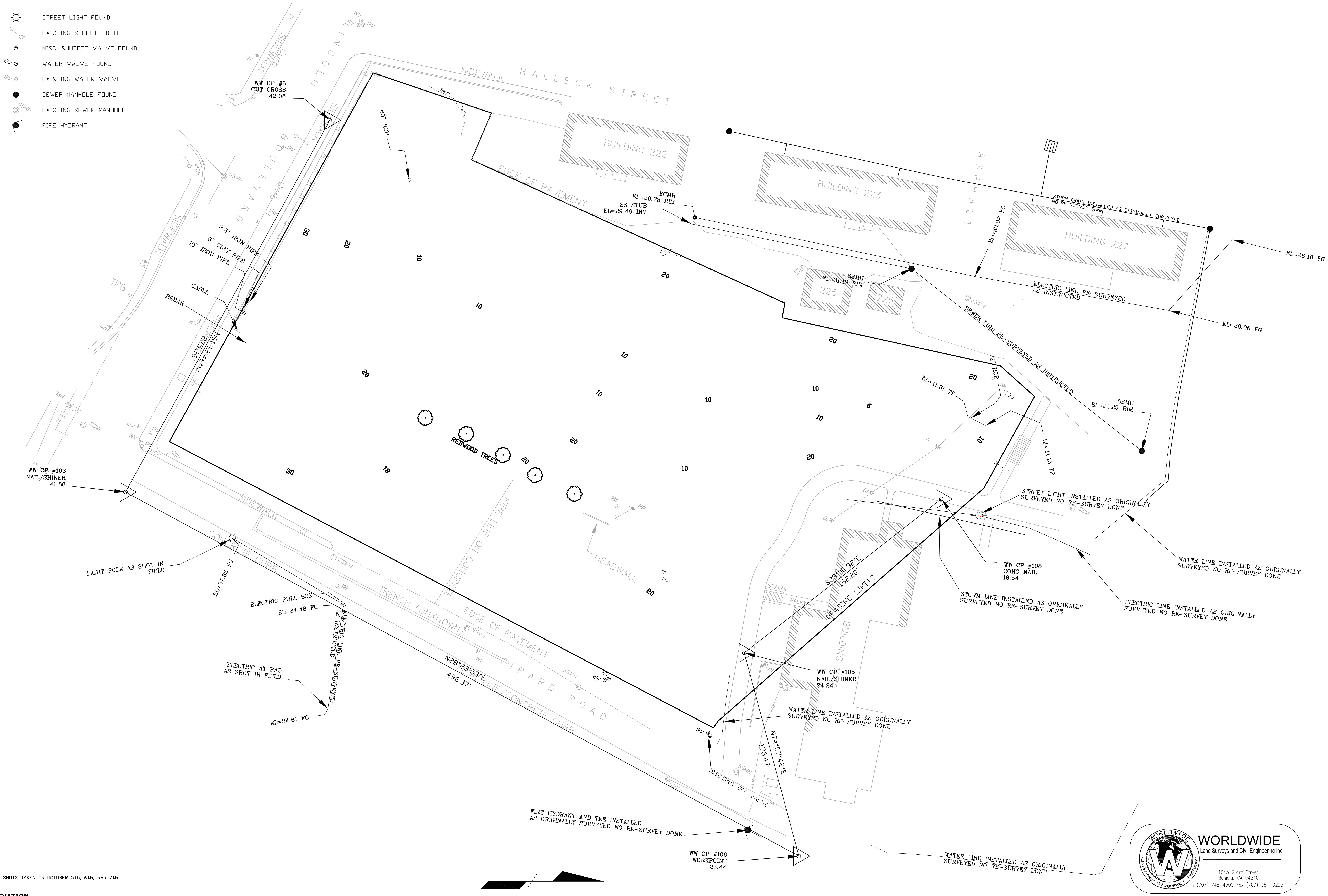
Filter Pack Material/Size: RMC #2/12

Northing/Easting: —

Surface Completion Details: stickup w/ threaded end cap - no locking cover or cap



Filter Pack Material RMC #2/12 Sand



SURVEY BASED ON SHOTS TAKEN ON OCTOBER 5th, 6th, and 7th

BASIS OF ELEVATION

PT#	NORTHING	EASTING	EL	DESCRIPTION
CA-1	479776.2000	1435313.5400	48.24	FDPK IN SIDEWALK EXP. JOINT 25' SW OF SW CORNER OF PRESIDIO FIRE STATION

WORLDWIDE CONTROL POINTS

PT#	NORTHING	EASTING	EL	DESCRIPTION
6	479609.3750	1435610.4450	42.08	CUT X
103	479476.8200	1435851.6900	41.88	NAIL/SHINER
105	479878.0500	1435955.9600	24.24	NAIL/SHINER
106	479913.4600	1436087.7600	23.44	WORKPOINT
108	480005.8500	1435856.0800	18.54	CONC NAIL

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

WORLDWIDE
Land Surveys and Civil Engineering Inc.
1043 Grant Street
Benicia, CA 94510
Ph (707) 748-4300 Fax (707) 361-0295

PRESIDIO SITE 6A

RECORD DRAWING AS-BUILT

SAN FRANCISCO CALIFORNIA

N

SCALE: 1"=30'

LEGEND

AB	AGGREGATE BASE	INST.	INSTALL
AC	ASPHALTIC CONCRETE	INV.	INVERT
BO	BLOW OFF (WATER)	LH	LAMP HOLE
BSW	BACK OF SIDEWALK	MH	MANHOLE
CB	CATCH BASIN	PCC	PORTLAND CEMENT CONCRETE
CIP	CAST IRON PIPE	PL	PROPERTY LINE
CL	CENTER LINE	PUE	PUBLIC UTILITY EASEMENT
CO	CLEAN OUT (SEWER)	RCP	REINFORCED CONCRETE PIPE
CONST.	CONSTRUCT	S	SANITARY SEWER
DI	DROP INLET	SD	STORM DRAIN
DIP	DUCTILE IRON PIPE	SL	SLOPE
EP	EDGE OF PAVEMENT	SW	SIDEWALK
(E)	EXISTING	TC	TOP OF CURB
FC	FACE OF CURB	YD	YARD DRAIN
FG	FINISH GRADE	W	WATER
FH	FIRE HYDRANT	WM	WATER METER
G	GAS	WV	WATER VALVE
HP	HIGH POINT		

SD — STORM DRAIN LINE
S — SANITARY SEWER LINE
W — WATER LINE
POLE WITH GUY
FIRE HYDRANT
WATER VALVE
G — GAS LINE
T — TELEPHONE LINE
E — ELECTRICAL LINE
? — UNKNOWN LINE
POST
SB SOIL BORING

SURVEY CONTROL

Point #	Northing	Easting	Elevation	Description
1	1435313.536	479776.202	48.24	CA 1 PK NAIL
3	1434864.635	479889.531	44.15	CA 3 NS
49	1435610.464	479609.320	42.09	RETIE CAT X-30
50	1435956.033	479877.973	24.24	MAGNF "105WLS"
51	1435856.178	480005.808	18.52	MAGNF

NOTE: Topographic Map Shown hereon was prepared by field survey by Chaudhary & Associates, Inc. January 23, 2006 and January 25, 2006.

DATUM

HORIZONTAL DATUM: NAD 27
VERTICAL DATUM: NAVD 88

34 Graham Street
P.O. Box 29052
San Francisco
California
94129-0052

415/561-7621
415/561-5314
fax 561-5315

presidio@presidiotrust.gov

consultant

Chaudhary & Associates, Inc.
851 Napa Valley Corp.Way#G
Napa, Ca. 94558
707/255-2729
fax 255-5021
Arvin@Chaudhary.com

TOPOGRAPHIC SURVEY

The Presidio of San Francisco

F56A

CONTACT
Arvin Chaudhary, P.E.

PROJECT NO.
01-04-028 x

DATE	SCALE
09/29/05	1"=30'

1-2

APPENDIX J

QUALITY CONTROL SUMMARY REPORT

TO: Gary Lieberman, Mactec E & C, Inc. February 21, 2006

FROM: Donna Breaux, DataVal, Inc. Project No. 55213 00311

DATA VALIDATION SUMMARY REPORT FOR THE LANDFILL 6 SAMPLING EVENT, THE PRESIDIO OF SAN FRANCISCO, CA

LABORATORY: Curtis & Tompkins, Ltd., Berkeley, CA

SAMPLING DATES: June 23 through November 17, 2005

Data validation of Level III and Level IV laboratory data packages was performed according to the project-specific guidelines. These guidelines were outlined in the Presidio-wide Quality Assurance Project Plan, Sampling and Analysis Plan, April, 2001; the U. S. Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Organic Data Review, October, 1999; and the U. S. Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

The data were reviewed for holding times, blanks, GC/MS tunes, initial calibrations, continuing calibration verification (CCV) standards, performance evaluation mix (PEM) standards, surrogate recoveries, internal standards, laboratory control samples (LCS), laboratory duplicate samples, matrix spikes (MS), matrix spike duplicates (MSD), ICP interference check standards, ICP serial dilutions, field QC blanks, field duplicate samples and compound identification and quantitation.

The following paragraphs highlight the essential findings of the data validation effort:

I. Volatile Organic Compounds by GC/MS (8260B)

Overall, the data are usable as reported. Qualification was not required.

A. Reporting Limits

The laboratory reporting limits for VOCs in soil matrix samples met the project required reporting limits, with the following exceptions:

1. The laboratory reporting limits did not meet the project required reporting limits listed in Table 2-6.8-1 of the QAPP for acetone, methylene chloride and vinyl acetate. The laboratory reported 20 ug/kg for acetone and methylene chloride. The project required reporting limits were 10 ug/kg and 5 ug/kg, respectively. The laboratory reported 50 ug/kg for vinyl acetate. The project required reporting limit was 10 ug/kg.
2. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples. Samples with non-detected results and high-failing surrogate recoveries did not require qualification and were not noted in this report.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples.

F. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples, with the following exception:

1. The percent recovery for trichloroethene failed the 65%-135% acceptance criteria in QC sample 180425-007 MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103689)

G. GC/MS Tunes

All QC criteria were met for the GC/MS tunes associated with the project samples.

H. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples.

I. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards associated with the project samples. Qualification was not required for samples with non-detect results and high-failing CCV percent differences. Those failures were not noted in this report.

J. Internal Standards

Internal standard areas and retention times met QC acceptance criteria for all project samples.

K. Compound Identification and Quantitation

Samples LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005) and LF6EX138(3.0) (180742-007) received full (Level IV) data validation. This included re-calculation of GC/MS tunes, initial and continuing calibrations, surrogate values, and internal standard areas; in addition to re-calculation

of all reported results for VOCs in these samples. The results for VOCs were verified as correctly reported by the laboratory.

II. Semi-volatile Organic Compounds by GC/MS (8270C)

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Sections I and J.

A. Reporting Limits

The laboratory reporting limits for SVOCs in water and soil matrix samples met the project required reporting limits, with the following exceptions:

1. The laboratory reporting limit did not meet the project required reporting limit listed in Table 2-6.9-1 of the QAPP for 2-nitrophenol in water matrix samples. The laboratory reported 20 ug/L for 2-nitrophenol. The project required reporting limit was 10 ug/L.
2. The laboratory reporting limits did not meet the project required reporting limits listed in Table 2-6.9-1 of the QAPP for 2-nitrophenol and benzoic acid in soil matrix samples. The laboratory reported 660 ug/kg for 2-nitrophenol and 1700 ug/kg for benzoic acid. The project required reporting limits were 330 ug/kg and 1600 ug/kg, respectively.
3. The results for all SVOCs in sample LF6EX159(1.0) (182169-005) were reported at a two-fold dilution due to the nature of the sample matrix. The reporting limits were raised by the dilution factor, and the sample was non-detected for all target SVOCs.
4. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples, with the following exceptions:

1. The percent recoveries were outside the project acceptance criteria for 4-nitrophenol and phenol in QC samples QC298743/QC298744 LCS/LCSD. Both analytes had high-failing recoveries. The associated samples were non-detect for these compounds, and qualification was not required. (QC batch 103278)
2. The percent recoveries for phenol failed the 17%-55% acceptance criteria in QC samples QC299876/QC299877 LCS/LCSD. The phenol

recoveries failed high. The associated samples were non-detect for phenol, and qualification was not required. (QC batch 103571)

F. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples.

G. GC/MS Tunes

All QC criteria were met for the GC/MS tunes associated with the project samples.

H. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples.

I. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards associated with the project samples, with the following exceptions:

1. Qualification was not required for samples with non-detect results associated with CCVs that failed high. Those failures were not noted in this report.
2. The 6/30/05 at 10:08 soil matrix continuing calibration standard analyzed on instrument MSBNA05 had one compound with a %D less than -25%: benzoic acid at -35%. The associated sample was non-detect for benzoic acid, and qualified as estimated (UJ).
3. The 7/7/05 at 16:49 soil matrix continuing calibration standard analyzed on instrument MSBNA05 had one compound with a %D less than -25%: benzo(k)fluoranthene at -27%. The associated sample was non-detect for benzo(k)fluoranthene, and qualified as estimated (UJ).

See Table 2 of this report for a summary of qualifications due to continuing calibration percent difference failure.

J. Internal Standards

Internal standard areas and retention times met QC acceptance criteria for all project samples, with the following exception:

1. Project sample LF6EX111(2.0) (180219-002) had one internal standard area outside the -50% to +100% acceptance criteria, perylene-d12. The compounds associated with the outlying internal standard: di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene and benzo(g,h,i)perylene, were non-detect, and qualified as estimated (UJ).

See Table 2 of this report for a summary of analyte qualifications due to internal standard area count failure.

K. Compound Identification and Quantitation
Samples LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005), LF6EX138(3.0) (180742-007), LF6EX139(7.5) (180742-008), LF6EX140(5.0) (180742-009), LF6EX141(8.0) (180742-010), LF6EX142(15.0) (180742-011) and DUP(072105) (180742-012) received full (Level IV) data validation. This included re-calculation of GC/MS tunes, initial and continuing calibrations, surrogate values, and internal standard areas; in addition to re-calculation of all reported results for SVOCs in these samples. The results for SVOCs were verified as correctly reported by the laboratory.

III. Total Petroleum Hydrocarbons - Gasoline Range (8015B)

Overall, the data are usable as reported. Qualification was not required.

A. Reporting Limits
The laboratory reporting limits for gasoline range organics in water and soil matrix samples met the project required reporting limits.

B. Holding Times
Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries
Surrogate spike recoveries met QC acceptance criteria for all project samples.

D. Blanks
Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples
All QC criteria were met for the laboratory control samples associated with the project samples.

F. Matrix Spike/Matrix Spike Duplicate
All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples.

G. Initial Calibration
Initial calibration criteria were met for all calibration standards associated with the project samples.

H. Continuing Calibration
Continuing calibration criteria were met for all continuing calibration standards associated with the project samples.

I. Compound Identification and Quantitation
Samples analyzed for the TPH-gasoline did not receive full (Level IV) data validation.

III. Benzene, Toluene, Ethylbenzene and Xylenes (8021B)

Overall, the data are usable as reported. Qualification was not required.

A. Reporting Limits
The laboratory reporting limits for BTEX in soil matrix samples met the project required reporting limits.

B. Holding Times
Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries
Surrogate spike recoveries met QC acceptance criteria for all project samples.

D. Blanks
Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples
All QC criteria were met for the laboratory control samples associated with the project samples.

F. Matrix Spike/Matrix Spike Duplicate
A matrix spike and matrix spike duplicate were not analyzed with the project samples for this analysis.

G. Initial Calibration
Initial calibration criteria were met for all calibration standards associated with the project samples.

H. Continuing Calibration
Continuing calibration criteria were met for all continuing calibration standards associated with the project samples.

I. Compound Identification and Quantitation
Samples analyzed for the benzene, toluene, ethylbenzene and xylenes did not receive full (Level IV) data validation.

IV. Total Petroleum Hydrocarbons – Diesel/Fuel Oil Range (8015B)

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Sections C and F.

A. Reporting Limits

The laboratory reporting limits for diesel and fuel oil range organics in water and soil matrix samples met the project required reporting limits. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples, with the following exceptions:

1. The percent recovery for surrogate hexacosane was outside the 65%-135% project acceptance criteria in sample LF6EX111(2.0) (180219-002) at 136%. The detected results for diesel and fuel oil in this sample were qualified as estimated with a high bias (J+).
2. The percent recovery for surrogate hexacosane was outside the 65%-135% project acceptance criteria in sample LF6EX136(11.0) (180742-004) at 64%. The non-detected results for diesel and fuel oil in this sample were qualified as estimated (UJ).
3. The percent recovery for surrogate hexacosane was outside the 65%-135% project acceptance criteria in sample LF6EX142(15.0) (180742-011) at 56%. The non-detected results for diesel and fuel oil in this sample were qualified as estimated (UJ).

See Table 2 of this report for a summary of qualifications due to surrogate percent recovery failure.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples, with the following exception:

1. Method blank QC313479 had a detected level of diesel at 55 ug/L. All associated samples were non-detect for diesel, and qualification was not required.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples.

F. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples, with the following exceptions:

1. The percent recovery for diesel failed the 65%-135% project acceptance criteria in QC sample LF6EX120(21.5) (180307-002) MSD

at 63%. The detected result for diesel in the parent sample was qualified as estimated with a low bias (J-). (QC batch 103430)

2. The percent recoveries for diesel failed the 65%-135% project acceptance criteria in QC samples LF6SP1109-C (183340-002) MS/MSD at 262%/293%. The detected result for diesel in the parent sample was qualified as estimated with a high bias (J+). (QC batch 108082)

See Table 2 of this report for a summary of qualifications due to matrix spike percent recovery failures.

G. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples.

H. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards associated with the project samples.

I. Compound Identification and Quantitation

Samples LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005), LF6EX138(3.0) (180742-007), LF6EX139(7.5) (180742-008), LF6EX140(5.0) (180742-009), LF6EX141(8.0) (180742-010), LF6EX142(15.0) (180742-011) and DUP(072105) (180742-012) received full (Level IV) data validation. This included re-calculation of initial and continuing calibrations, and surrogate values; in addition to re-calculation of the reported results for TPH-diesel and TPH-fuel oil in these samples. The results for TPH-diesel and TPH-fuel oil were verified as correctly reported by the laboratory.

V. Organochlorine Pesticides (8081A)

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Sections C, D, E, H and I.

A. Reporting Limits

The laboratory reporting limits for pesticides in soil matrix samples met the project required reporting limits, with the following exceptions:

1. The laboratory reporting limit did not meet the project required reporting limit listed in Table 2-6.5-1 of the QAPP for toxaphene. The laboratory reported 60 ug/kg for toxaphene. The project required reporting limit was 40 ug/kg.
2. The results for all pesticides in sample LF6EX111(2.0) (180219-002) were reported at a five-fold dilution due to the nature of the sample matrix. The reporting limits were raised by the dilution factor and the sample results were non-detect at the raised reporting limits.
3. The results for all pesticides in samples LF6SP105 (180485-007) and LF6SP1109-C (183340-002) were reported at ten-fold dilutions due to

the nature of the sample matrices. The reporting limits were raised by the dilution factors and the sample results were non-detect at the raised reporting limits.

4. The results for all pesticides except alpha-chlordane and gamma-chlordane in samples LF6SS303 (182754-001), LF6SS304 (182754-002) and LF6SS306 (182884-001) were reported at five-fold dilutions due to the nature of the sample matrices. The reporting limits were raised by the dilution factors and the sample results were non-detect at the raised reporting limits.
5. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples, with the following exceptions:

1. Surrogate recoveries that failed in samples diluted five times or greater did not require qualification, and were not noted in this report.
2. Samples with non-detected results and high-failing surrogate recoveries did not require qualification, and were not noted in this report.
3. The percent recoveries for surrogates 2,4,5,6-tetrachloro-meta-xylene (TCMX) and/or decachlorobiphenyl (DCB) failed the 65%-135% project acceptance criteria in several project samples. The compounds associated with surrogate TCMX: alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, aldrin, heptachlor, heptachlor epoxide and endosulfan I, were non-detect and qualified as estimated (UJ). The compounds associated with surrogate DCB: alpha-chlordane, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, dieldrin, endosulfan II, endosulfan sulfate, endrin, endrin ketone, gamma-chlordane, methoxychlor and toxaphene, were qualified as estimated with a low bias (J-/UJ). The following table lists the project samples qualified due to these QC failures.

Project Sample Name	Laboratory Sample ID	DCB % Recovery	TCMX % Recovery
LF6EX117(7)	180285-001	75	57
LF6EX118(15.5)	180285-002	79	59
LF6EX119(7)	180307-001	74	62
LF6EX120(21.5)	180307-002	67	61
LF6EX136(11.0)	180742-004	91	56
LF6EX159(1.0)	182169-005	57	49

See Table 2 of this report for a summary of qualifications due to surrogate percent recovery failures.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples, with the following exception:

1. Method blank QC313628 had a detected level of endrin aldehyde at 1.9 ug/kg. The results for endrin aldehyde in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.

See Table 2 of this report for a summary of qualifications due to blank contamination.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples, with the following exception:

1. The percent recovery for 4,4'-DDT was outside the 65%-135% project acceptance criteria in QC sample QC298840 LCS at 61%. The non-detected result for 4,4'-DDT in the associated sample was qualified as estimated (UJ). (QC batch 103302)

See Table 2 of this report for a summary of qualifications due to laboratory control sample percent recovery failures.

F. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples, with the following exception:

1. The percent recovery for 4,4'-DDT failed the 65%-135% acceptance criteria in QC sample 182560-001 MS. The parent sample was associated with a site unrelated to the project site, and qualification was not required. (QC batch 106900)

G. Performance Evaluation Mix (PEM) Check Standards

All PEM check standards met the project degradation criteria of 20% for endrin and 4,4'-DDT. Data was reported from two columns, and PEM check standards that had percent degradations that failed criteria on one column did not require qualification if sample results were reported from the column in control. Those failures were not noted in this report.

H. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples, with the following exceptions:

1. Data was reported from two columns, and calibration standards that had percent relative standard deviations (%RSDs) that failed criteria on one column did not require qualification if sample results were reported from the column in control. Those failures were not noted in this report.
2. The 9/28/05 initial calibration analyzed on instrument GC23A had two compounds with %RSDs greater than 20%, beta-BHC (27%) and delta-BHC (23%). The non-detected results for beta-BHC and delta-BHC in the associated sample were qualified as estimated (UJ).

See Table 2 of this report for a summary of qualifications due to initial calibration %RSD failure.

I. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards (CCVs) associated with the project samples, with the following exceptions:

1. Qualification was not required for samples with non-detect results associated with high-failing CCVs. Those failures were not noted in this report.
2. Data was reported from two columns, and CCVs that had percent differences that failed criteria on one column did not require qualification if sample results were reported from the column in control. Those failures were not noted in this report.
3. The 6/28/05 at 01:19 soil matrix CCV analyzed on instrument GC23A had one compound with a %D less than -15%: methoxychlor (-17%). The associated samples were non-detect for methoxychlor, and were qualified as estimated (UJ).
4. The 6/28/05 at 07:56 soil matrix CCV analyzed on instrument GC23A had two compounds with %Ds less than -15%: 4,4'-DDT (-22%) and methoxychlor (-22%). The associated samples were non-detect for 4,4'-DDT and methoxychlor, and were qualified as estimated (UJ).
5. The 6/30/05 at 11:25 soil matrix CCV analyzed on instrument GC23A had two compounds with %Ds less than -15%: 4,4'-DDT (-17%) and methoxychlor (-16%). The associated samples were non-detect for 4,4'-DDT and methoxychlor, and were qualified as estimated (UJ).
6. The 6/30/05 at 15:33 soil matrix CCV analyzed on instrument GC23A had one compound with a %D less than -15%: 4,4'-DDT (-18%). The associated samples were non-detect for 4,4'-DDT, and were qualified as estimated (UJ).
7. The 10/20/05 at 10:18 soil matrix CCV analyzed on instrument GC23A had one compound with a %D less than -15%: delta-BHC (-16%). The associated sample was non-detect for delta-BHC, and was qualified as estimated (UJ).
8. The 10/20/05 at 16:44 soil matrix CCV analyzed on instrument GC23A had two compounds with %Ds less than -15%: beta-BHC (-21%) and delta-BHC (-24%). The associated sample was non-detect for beta-BHC and delta-BHC, and was qualified as estimated (UJ).
9. The 10/28/05 at 21:06 soil matrix CCV analyzed on instrument GC16B had two compounds with %Ds less than -15%: 4,4'-DDT (-21%) and methoxychlor (-19%). The associated samples were non-detect for 4,4'-DDT and methoxychlor, and were qualified as estimated (UJ).
10. The 11/2/05 at 15:09 soil matrix CCV analyzed on instrument GC16B had three compounds with %Ds less than -15%: 4,4'-DDT (-20%), methoxychlor (-23%) and endosulfan sulfate (-16%). The associated sample was non-detect for 4,4'-DDT, methoxychlor and endosulfan sulfate, and was qualified as estimated (UJ).

11. The 11/24/05 at 09:22 soil matrix CCV analyzed on instrument GC16A had two compounds with %Ds less than -15%: 4,4'-DDT (-39%) and methoxychlor (-30%). The associated samples were non-detect for 4,4'-DDT and methoxychlor, and were qualified as estimated (UJ).

See Table 2 of this report for a summary of qualifications due to continuing calibration percent difference failure.

J. Compound Identification and Quantitation

Samples LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005) and LF6EX138(3.0) (180742-007) received full (Level IV) data validation. This included re-calculation of PEM standards, initial and continuing calibrations and surrogate values; in addition to re-calculation of all reported results for pesticides in these samples. The results for pesticides were verified as correctly reported by the laboratory.

VI. Polychlorinated Biphenyls (8082)

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reason noted in Section C.

A. Reporting Limits

The laboratory reporting limits for PCBs in water and soil matrix samples met the project required reporting limits. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples, with the following exceptions:

1. Samples with non-detected results and high-failing surrogate recoveries did not require qualification, and were not noted in this report.
2. The percent recoveries for surrogates 2,4,5,6-tetrachloro-meta-xylene (TCMX) and/or decachlorobiphenyl (DCB) failed the 65%-135% project acceptance criteria in several samples. The compounds associated with surrogate TCMX, PCB-1016, PCB-1221, PCB-1232 and PCB-1242, were non-detect in the samples with low-failing surrogates, and were qualified as estimated (UJ). The compounds associated with surrogate DCB, PCB-1248, PCB-1254, and PCB-1260, were non-detect in the samples with low-failing surrogates, and were qualified as estimated (UJ). The detected compounds in the sample with high-failing surrogates were qualified as estimated with a high bias (J+). The following table lists the project samples that were qualified due to these QC failures.

Project Sample Name	Laboratory Sample ID	DCB % Recovery	TCMX % Recovery
LF6EX121(20)	180329-001	75	56
LF6SP103	180373-002	61	58
LF6EX147(1.0)	181272-006	156	136

See Table 2 of this report for a summary of qualifications due to surrogate percent recovery failures.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples, with the following exception:

1. The percent recovery for PCB-1232 failed the 65%-135% acceptance criteria in QC sample QC300189 LCS. PCB-1232 failed high in the LCS sample. The associated samples were non-detect for PCB-1232, and qualification was not required. (QC batch 103652)

F. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples.

G. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples.

H. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards associated with the project samples. Data was reported from two columns, and CCVs with percent differences that failed criteria on one column did not require qualification if sample results were reported from the column in control. Those failures were not noted in this report.

I. Compound Identification and Quantitation

Samples LF6EX134(2.5) (180742-001), LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005), LF6EX137(4.0) (180742-006) and LF6EX138(3.0) (180742-007) received full (Level IV) data validation. This included re-calculation of initial and continuing calibrations and surrogate values; in addition to re-calculation of all reported results for pesticides in these samples. The results for PCBs were verified as correctly reported by the laboratory.

VII. Chlorinated Herbicides (8151A)

Overall, the data are usable as reported with any added qualifiers. Qualification was required for the reason noted in Section B.

A. Reporting Limits

The laboratory reporting limits for herbicides in soil matrix samples met the project required reporting limits. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times

Technical holding time criteria were met for all project samples, with the following exception:

1. The extraction for herbicides was performed 1 day past the 14-day extraction holding time in sample LF6EX111(2.0) (180219-002). The non-detected results for herbicides in this sample were qualified as estimated (UJ).

See Table 2 of this report for a summary of qualifications due to missed extraction holding times.

C. Surrogate Recoveries

Surrogate spike recoveries met QC acceptance criteria for all project samples.

D. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples.

E. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples.

F. Matrix Spike/Matrix Spike Duplicate

Matrix spikes and matrix spike duplicates were not analyzed with the project samples.

G. Initial Calibration

Initial calibration criteria were met for all calibration standards associated with the project samples.

H. Continuing Calibration

Continuing calibration criteria were met for all continuing calibration standards associated with the project samples.

I. Internal Standards

Internal standard areas met QC acceptance criteria for all project samples.

J. Compound Identification and Quantitation
Samples LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005) and LF6EX138(3.0) (180742-007) received full (Level IV) data validation. This included re-calculation of initial and continuing calibrations, surrogate values, and internal standard areas; in addition to re-calculation of all reported results for herbicides in these samples. The results for herbicides were verified as correctly reported by the laboratory.

VIII. Total, Dissolved, WET and TCLP Metals (6010B/6020/7470A/7471A)

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Sections C, E and G.

A. Reporting Limits
The laboratory reporting limits for metals in water and soil matrix samples met the project required reporting limits listed in Table 2-5.21-1 of the QAPP. It should be noted that the reporting limits for all soils were raised due to dry weight correction.

B. Holding Times
Technical holding time criteria were met for all project samples.

C. Blanks
Target analytes were not observed in any laboratory method blanks associated with the project samples, with the following exceptions:

1. Method blank QC299882 had detected levels of chromium (2.1 mg/kg) and zinc (1.0 mg/kg). All associated samples had chromium and zinc values greater than five times the blank amounts, and qualification was not required.
2. Method blank QC301088 had detected levels of arsenic (2.4 ug/L) and zinc (2.1 ug/L). The results for arsenic and zinc in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.
3. Method blank QC301139 had a detected level of mercury at 0.099 ug/L. The results for mercury in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.
4. Method blank QC301346 had detected levels of antimony (4.0 ug/L), copper (3.5 ug/L) and sodium (130 ug/L). All associated samples had sodium values greater than five times the blank amount and qualification was not required. The results for antimony and copper in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.
5. Method blank QC302575 had detected levels of iron (39 ug/L) and molybdenum (0.56 ug/L). The results for iron and molybdenum in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.

6. Method blank QC303105 had detected levels of aluminum (22 ug/L), calcium (23 ug/L), iron (25 ug/L), magnesium (16 ug/L), molybdenum (0.3 ug/L) and sodium (47 ug/L). All associated samples had calcium, iron, magnesium and sodium values greater than five times the blank amounts and qualification was not required. The results for aluminum and molybdenum in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.
7. Method blank QC313544 had detected levels of aluminum (16 ug/L), antimony (0.11 ug/L), calcium (37 ug/L), chromium (0.35 ug/L), iron (16 ug/L), magnesium (4.4 ug/L), sodium (18 ug/L) and vanadium (0.21 ug/L). All associated samples had calcium, chromium, iron, magnesium, sodium and vanadium values greater than five times the blank amounts and qualification was not required. The results for aluminum and antimony in the associated samples were changed to non-detect (U) if those values were less than five times the blank amount.

See Table 2 of this report for a summary of qualifications due to blank contamination.

D. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples.

E. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples, with the following exceptions:

1. The percent recoveries for antimony, barium, chromium, lead, nickel, vanadium and zinc failed the 75%-125% acceptance criteria in QC samples LF6EX110(1.0) (180219-001) MS and/or MSD. The amounts of barium, chromium and nickel present in the parent sample were greater than four times the amounts spiked, and qualification was not required. The results for antimony, lead, vanadium and zinc in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 103385)
2. The percent recoveries for antimony and barium failed the 75%-125% acceptance criteria in QC samples LF6EX121(20) (180329-001) MS and/or MSD. The results for antimony and barium in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 103474)
3. The percent recoveries for antimony failed the 75%-125% acceptance criteria in QC samples 180386-007 MS/MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103528)
4. The percent recoveries for antimony and lead failed the 75%-125% acceptance criteria in QC samples 180413-001 MS and/or MSD. The parent sample was associated with a site unrelated to the project site,

and qualification of the project samples was not required. (QC batch 103573)

5. The percent recoveries for lead failed the 75%-125% acceptance criteria in QC samples LF6EX125(10.0) (180456-001) MS/MSD. The results for lead in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 103731)
6. The percent recoveries for antimony failed the 75%-125% acceptance criteria in QC samples LF6SW202 (180577-001) MS/MSD. The results for antimony in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 103879)
7. The percent recovery for lead failed the 75%-125% acceptance criteria in QC sample LF6SP103 (180582-001) MS. The amount of lead present in the parent sample was greater than four times the amount spiked, and qualification was not required. (QC batch 103907)
8. The percent recoveries for aluminum, antimony, copper, iron, magnesium, molybdenum, nickel, potassium, selenium, thallium, vanadium and zinc failed the 75%-125% acceptance criteria in QC samples 180617-010 MS and/or MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103955)
9. The percent recoveries for aluminum, calcium, iron, lead, manganese, potassium and sodium failed the 75%-125% acceptance criteria in QC samples 180522-002 MS and/or MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103941)
10. The percent recoveries for antimony, molybdenum, nickel, vanadium and zinc failed the 75%-125% acceptance criteria in QC samples 180731-001 MS and/or MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 104193)
11. The percent recoveries for mercury failed the 75%-125% acceptance criteria in QC samples 180649-001 MS/MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 104288)
12. The percent recoveries for aluminum, arsenic, barium, cadmium, calcium, chromium, cobalt, lead, magnesium, manganese, nickel, potassium, silver, sodium, thallium, vanadium and zinc failed the 75%-125% acceptance criteria in QC samples 180791-001 MS and/or MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 104191)
13. The percent recoveries for calcium, magnesium and sodium failed the 75%-125% acceptance criteria in QC sample LF6SW206 (180818-006) MS. The amounts of calcium, magnesium and sodium present in the parent sample were greater than four times the amounts spiked, and qualification was not required. (QC batch 104232)

14. The percent recoveries for antimony, barium, chromium and nickel failed the 75%-125% acceptance criteria in QC samples LF6EX102(3.0) (180081-001) MS and/or MSD. The results for antimony, barium, chromium and nickel in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 103248)
15. The percent recoveries for lead failed the 75%-125% acceptance criteria in QC samples LF6EX125(10.0) (180456-001) MS/MSD below 30%. The detected results for lead in the associated samples were qualified as estimated with a low bias (J-). (QC batch 103731)
16. The percent recovery for lead failed the 75%-125% acceptance criteria in QC sample 180635-001 MS. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 104087)
17. The percent recoveries for antimony and vanadium failed the 75%-125% acceptance criteria in QC samples LF6EX134(2.5) (180742-001) MS and/or MSD. The non-detected results for antimony in the associated samples were qualified as estimated (UJ). The detected results for vanadium in the associated samples were qualified as estimated with a high bias (J+). (QC batch 104125)
18. The percent recoveries for mercury failed the 75%-125% acceptance criteria in QC samples 180649-001 MS/MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 104155)
19. The percent recoveries for aluminum, calcium, manganese and sodium failed the 75%-125% acceptance criteria in QC samples LF6WW200 (180879-001) MS and/or MSD. The amounts of aluminum, calcium, manganese and sodium present in the parent sample were greater than four times the amounts spiked, and qualification was not required. (QC batch 104357)
20. The percent recoveries for antimony and lead failed the 75%-125% acceptance criteria and the relative percent difference (RPD) for lead failed the 30% acceptance criteria for soils in QC samples LF6EX103(3.0) (181272-001) MS and/or MSD. The results for antimony in the associated samples were qualified as estimated with a low bias (J-/UJ). The detected results for lead in the associated samples were qualified as estimated with a high bias (J+) due to percent recovery and RPD failure. (QC batch 104901)
21. The percent recoveries for antimony, barium, chromium, copper, lead, nickel and zinc failed the 75%-125% acceptance criteria in QC samples 181451-002 MS and/or MSD. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 105137)
22. The percent recoveries for antimony and zinc failed the 75%-125% acceptance criteria in QC samples LF6EX150(5.0) (181469-001) MS and/or MSD. The non-detected results for antimony in the associated samples were qualified as estimated (UJ). The detected results for

zinc in the associated samples were qualified as estimated with a high bias (J+). (QC batch 105206)

23. The percent recoveries for antimony, nickel and vanadium failed the 75%-125% acceptance criteria in QC samples LF6EX154(10.0) (181894-001) MS/MSD. The non-detected results for antimony in the associated samples were qualified as estimated (UJ). The detected results for nickel and vanadium in the associated samples were qualified as estimated with a high bias (J+). (QC batch 105827)
24. The percent recoveries for mercury failed the 75%-125% acceptance criteria in QC samples LF6EX158(1.0) (181894-005) MS/MSD. The results for mercury in the associated samples were qualified as estimated with a low bias (J-/UJ). (QC batch 105873)
25. The percent recoveries for antimony, silver and vanadium failed the 75%-125% acceptance criteria in QC samples LF6EX100(6.5) (182169-001) MS/MSD. The non-detected results for antimony and silver in the associated samples were qualified as estimated (UJ). The detected results for vanadium in the associated samples were qualified as estimated with a high bias (J+). (QC batch 106286)
26. The percent recoveries for antimony failed the 75%-125% acceptance criteria in QC samples LF6EX162(21.5) (182539-001) MS/MSD. The non-detected results for antimony in the associated samples were qualified as estimated (UJ). (QC batch 106916)
27. The percent recoveries for aluminum, calcium, magnesium and sodium failed the 75%-125% acceptance criteria and the relative percent difference (RPD) for aluminum failed the 20% acceptance criteria for waters in QC samples LF6SW209 (182539-004) MS and/or MSD. The amounts of magnesium and sodium present in the parent sample were greater than four times the amounts spiked, and qualification was not required. The detected results for calcium in the associated samples were qualified as estimated with a high bias (J+). The detected results for aluminum in the associated samples were qualified as estimated with a high bias (J+) due to percent recovery and RPD failure. (QC batch 106882)
28. The percent recoveries for antimony, barium, cobalt, nickel and silver failed the 75%-125% acceptance criteria and the RPD for cobalt failed the 30% acceptance criteria for soils in QC samples LF6SP1109-F (183340-001) MS and/or MSD. The non-detected results for silver in the associated samples were qualified as estimated (UJ). The detected results for barium and nickel in the associated samples were qualified as estimated with a high bias (J+). The detected results for cobalt in the associated samples were qualified as estimated with a high bias (J+) due to percent recovery and RPD failure. The percent recoveries for antimony were less than 30%, which required rejection of non-detected results. The non-detected results for antimony in the associated samples were qualified as rejected (R). (QC batch 108104)

See Table 2 of this report for a summary of qualifications due to matrix spike percent recovery and RPD failures.

F. <u>ICP Interference Check Standards</u>
All QC criteria were met for the ICP interference check standards associated with the project samples.

G. <u>ICP Serial Dilution</u>
All QC criteria were met for the ICP serial dilutions associated with the project samples, with the following exceptions:

1. The percent differences failed the 10% difference project acceptance criteria for arsenic, beryllium and lead in the serial dilution of sample LF6EX110(1.0) (180219-001) at 11%, 19% and 18%, respectively. The results for arsenic, beryllium and lead in the associated samples were qualified as estimated (J/UJ). (QC batch 103385)
2. The percent differences failed the 10% difference project acceptance criteria for antimony and arsenic in the serial dilution of sample 180413-001. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103573)
3. The percent difference failed the 10% difference project acceptance criteria for cadmium in the serial dilution of sample 180522-002. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103941)
4. The percent differences failed the 10% difference project acceptance criteria for cadmium and sodium in the serial dilution of sample 180617-010. The parent sample was associated with a site unrelated to the project site, and qualification of the project samples was not required. (QC batch 103955)
5. The percent difference failed the 10% difference project acceptance criteria for zinc in the serial dilution of sample LF6GW206 (180818-006) at 200%. The results for zinc in the associated samples were qualified as estimated (J/UJ). (QC batch 104232)
6. The percent difference failed the 10% difference project acceptance criteria for beryllium in the serial dilution of sample LF6EX102(3.0) (180081-001) at 26%. The results for beryllium in the associated samples were qualified as estimated (J/UJ). (QC batch 103248)
7. The percent differences failed the 10% difference project acceptance criteria for chromium and molybdenum in the serial dilution of sample LF6WW200 (180879-001) at 33% and 13%, respectively. The results for chromium and molybdenum in the associated samples were qualified as estimated (J/UJ). (QC batch 104357)
8. The percent difference failed the 10% difference project acceptance criteria for beryllium in the serial dilution of sample LF6EX103(3.0) (181272-001) at 21%. The results for beryllium in the associated samples were qualified as estimated (J/UJ). (QC batch 104901)
9. The percent difference failed the 10% difference project acceptance criteria for molybdenum in the serial dilution of sample 181451-002. The parent sample was associated with a site unrelated to the project

site, and qualification of the project samples was not required. (QC batch 105137)

10. The percent difference failed the 10% difference project acceptance criteria for arsenic in the serial dilution of sample LF6EX100(6.5) (182169-001) at 17%. The results for arsenic in the associated samples were qualified as estimated (J/UJ). (QC batch 106286)
11. The percent difference failed the 10% difference project acceptance criteria for copper in the serial dilution of sample LF6SP1109-F (183340-001) at 14%. The results for copper in the associated samples were qualified as estimated (J/UJ). (QC batch 108104)

See Table 2 of this report for a summary of qualifications due to serial dilution percent difference failure.

H. Initial and Continuing Calibrations

All initial and continuing calibration standards associated with the project samples met QC acceptance criteria.

I. Compound Identification and Quantitation

Samples LF6EX134(2.5) (180742-001), LF6EX135(24.0) (180742-002), DUP(072005)-1 (180742-003), LF6EX136(11.0) (180742-004), DUP(072005)-2 (180742-005), LF6EX137(4.0) (180742-006) and LF6EX138(3.0) (180742-007) received full (Level IV) data validation. This included re-calculation of initial and continuing calibrations; in addition to re-calculation of all reported results for metals in these samples. The results for metals were verified as correctly reported by the laboratory.

IX. Various General Chemistry Methods

Overall, the data are usable as reported with any added qualifiers. Qualifications were required for the reasons noted in Section E.

A. Reporting Limits

The laboratory reporting limits for cyanide, sulfide, oil and grease and hexavalent chromium in water matrix samples met the project required reporting limits.

B. Holding Times

Technical holding time criteria were met for all project samples.

C. Blanks

Target analytes were not observed in any laboratory method blanks associated with the project samples.

D. Laboratory Control Samples

All QC criteria were met for the laboratory control samples associated with the project samples.

E. Matrix Spike/Matrix Spike Duplicate

All QC criteria were met for the matrix spikes and matrix spike duplicates associated with the project samples, with the following exception:

1. The percent recoveries for cyanide failed the 65%-135% acceptance criteria in QC samples LF6WW200 (180216-001) MS/MSD. The non-detected result for cyanide in the associated sample was qualified as estimated (UJ). (QC batch 103330)

See Table 2 of this report for a summary of qualifications due to matrix spike percent recovery failures.

F. Laboratory Duplicate Samples

All QC criteria were met for the laboratory duplicate samples associated with the project samples.

G. Initial and Continuing Calibrations

All initial and continuing calibration standards associated with the project samples met QC acceptance criteria.

H. Compound Identification and Quantitation

Samples analyzed for the general chemistry parameters did not receive full (Level IV) data validation.

FIELD QC

The following paragraphs highlight the essential findings of the field duplicate samples:

Field duplicate precision was evaluated by calculating the relative percent difference (RPD) between detected results in the original sample and its associated duplicate. The control limit used for field duplicates was a relative percent difference less than or equal to 50 percent, or the absolute difference of the two results must be less than the reporting limit (waters) or less than two times the reporting limit (soils) for those analytes that were at or near the detection limit. Ten samples were collected in duplicate for the Landfill 6 sampling event.

Project Sample Primary ID	Laboratory Sample ID	Project Sample Duplicate ID	Laboratory Sample ID
LF6EX125(10.0)	180456-001	DUP(070605)	180456-002
LF6SW206	180779-001	DUP(072205)	180779-002
LF6EX135(24.0)	180742-002	DUP(072005)-1	180742-003
LF6EX136(11.0)	180742-004	DUP(072005)-2	180742-005
LF6EX142(15.0)	180742-011	DUP(072105)	180742-012
LF6SW206	180879-002	DUP(072205)	180879-003
LF6EX148(25.5)	181435-001	DUP(082305)	181435-002
LF6EX100(6.5)	182169-001	DUP(092905-1)	182169-002
LF6EX101(1.0)	182169-003	DUP(092905)-2	182169-004
LF6SW208	182539-005	DUP(101805)	182539-006

The attached Table 3 summarizes the field duplicate sample results. The detected results of the original sample and the associated duplicate sample were compared and the calculated RPDs reported. All RPDs met the 50 percent precision control limit requirement, with the following exceptions:

1. In field duplicates LF6EX125(10.0) and DUP(070605), the relative percent differences (RPDs) between the detected results failed the 50% acceptance criteria for lead at 96% and mercury at 68%.
2. In field duplicates LF6EX136(11.0) and DUP(072005)-2, the RPDs between the detected results failed the 50% acceptance criteria for arsenic at 56% and cobalt at 58%.
3. In field duplicates LF6SW206 and DUP(072205), the RPDs between the detected results failed the 50% acceptance criteria for antimony at 76% and thallium at 89%.
4. In field duplicates LF6SW208 and DUP(101805), the RPD between the detected results failed the 50% acceptance criteria for antimony at 155%.

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results in the field duplicate pairs listed above may be due to the sample matrix, sampling or laboratory technique, or method defects. With the exceptions noted above, the results between the field duplicate pairs matched well. Since the effect on the quality of the data is not known, data is not qualified for field duplicate failure.

SUMMARY

The attached Table 1 lists the samples and analyses included in the data validation effort. The attached Table 2 summarizes the data qualifications of all project samples for each test method included in the data packages.

USABILITY

The quality control criteria were reviewed, and other than those discussed above, all criteria were met and the data are considered acceptable. Rejected sample results (R) are not usable for any purpose. Estimated sample results (J/UJ) are usable only for limited purposes. Based upon the cursory level data validation, all other results are considered valid and usable for all purposes.

VALIDATION QUALIFIERS IDENTIFICATION

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," October, 1999.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. *A minus sign (-) indicates the numerical value has a low bias. A plus sign (+) indicates the numerical value has a high bias.*

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 1
Sample Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Site Sample ID	Laboratory Sample ID	Date Sampled	Analyses	Sample Type
FS6WW200	180216-001	24-Jun-05	Phenols (8270C), Total Metals (6010B, 7470A), General Chemistry Parameters (1, 2, 3, 4)	Water
LF6EX110(1.0)	180219-001	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX111(2.0)	180219-002	23-Jun-05	VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)	Soil
LF6EX112(1.5)	180219-003	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX113(1.0)	180219-004	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX114(2.0)	180219-005	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX115(2.0)	180219-006	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX116(2.5)	180219-007	23-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX117(7)	180285-001	27-Jun-05	Pesticides (8081A)	Soil
LF6EX118(15.5)	180285-002	28-Jun-05	Pesticides (8081A)	Soil
LF6EX119(7)	180307-001	28-Jun-05	Pesticides (8081A)	Soil
LF6EX120(21.5)	180307-002	29-Jun-05	VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6020, 7471A)	Soil
LF6SP100	180307-003	29-Jun-05	PCBs (8082), Total Metals (6020, 7471A)	Soil
LF6EX121(20)	180329-001	29-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP101	180329-002	30-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX122(16)	180373-001	30-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP103	180373-002	30-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX123(12.5)	180373-003	1-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6WW201	180401-001	5-Jul-05	Phenols (8270C), Total Metals (6010B, 7470A), General Chemistry Parameters (1, 2, 3, 4)	Water
LF6EX124(10)	180402-001	1-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP102	180402-002	1-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP100	180420-001	29-Jun-05	TPH-Diesel/FO (8015B)	Soil
LF6SP101	180420-002	30-Jun-05	TPH-Diesel/FO (8015B)	Soil
LF6SP102	180420-003	1-Jul-05	TPH-Diesel/FO (8015B)	Soil
LF6EX125(10.0)	180456-001	6-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil (1)
DUP(070605)	180456-002	6-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	FD (1)

Table 1
Sample Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Site Sample ID	Laboratory Sample ID	Date Sampled	Analyses	Sample Type
LF6EX126(13.0)	180456-003	6-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX127(25.0)	180456-004	6-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX128(25.0)	180456-005	6-Jul-05	VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)	Soil
LF6SP103	180501-001	30-Jun-05	WET Lead (6010B)	Soil
LF6SW202	180577-001	14-Jul-05	Dissolved Metals (6010B, 7470A)	Water
LF6WW203	180577-002	14-Jul-05	Dissolved Metals (6010B, 7470A)	Water
LF6SP103	180582-001	30-Jun-05	TCLP Lead (6010B)	Soil
LF6GW204	180615-001	15-Jul-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), PCBs (8082), Total Metals (6010B, 7470A)	Water
LF6WW205	180615-002	15-Jul-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), PCBs (8082), Total Metals (6010B, 7470A)	Water
LF6SP106	180615-003	15-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP107	180615-004	15-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SP108	180778-001	22-Jul-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6SW206	180779-001	22-Jul-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), PCBs (8082), Total Metals (6010B, 6020, 7470A)	Water (2)
DUP(072205)	180779-002	22-Jul-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), PCBs (8082), Total Metals (6010B, 6020, 7470A)	FD (2)
LF6WW201	180818-001	5-Jul-05	Total Metals (6020)	Water
LF6SW202	180818-002	14-Jul-05	Total Metals (6020)	Water
LF6WW203	180818-003	14-Jul-05	Total Metals (6020)	Water
LF6WW204	180818-004	15-Jul-05	Total Metals (6020)	Water
LF6GW205	180818-005	15-Jul-05	Total Metals (6020)	Water
LF6GW206	180818-006	22-Jul-05	Total Metals (6020)	Water
LF6EX102(3.0)	180081-001	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX104(2.0)	180081-003	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX105(1.0)	180081-004	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX106(1.0)	180081-005	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX107(0.5)	180081-006	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX108(3.0)	180081-007	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil

Table 1
Sample Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Site Sample ID	Laboratory Sample ID	Date Sampled	Analyses	Sample Type
LF6EX109(0.5)	180081-008	16-Jun-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX129(20.0)	180485-001	7-Jul-05	VOCs (8260B), PAHs (8270C-SIM), TPH-Diesel/FO (8015B)	Soil
LF6EX130(6.0)	180485-002	7-Jul-05	PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6EX131(6.0)	180485-003	7-Jul-05	PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6EX132(9.0)	180485-004	7-Jul-05	PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6EX133(2.5)	180485-005	7-Jul-05	PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6SP104	180485-006	8-Jul-05	PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6SP105	180485-007	8-Jul-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Total Metals (6010B/7471A), General Chemistry Parameters (4, 5, 6, 7)	Soil
LF6SP107	180673-001	15-Jul-05	TCLP Lead (6010B), WET Lead (6010B)	Soil
LF6EX134(2.5)	**180742-001**	**20-Jul-05**	**PCBs (8082), Total Metals (6010B, 7471A)**	**Soil**
LF6EX135(24.0)	**180742-002**	**20-Jul-05**	**VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)**	**Soil (3)**
DUP(072005)-1	**180742-003**	**20-Jul-05**	**VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)**	**FD (3)**
LF6EX136(11.0)	**180742-004**	**20-Jul-05**	**VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)**	**Soil (4)**
DUP(072005)-2	**180742-005**	**20-Jul-05**	**VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)**	**FD (4)**
LF6EX137(4.0)	**180742-006**	**21-Jul-05**	**PCBs (8082), Total Metals (6010B, 7471A)**	**Soil**
LF6EX138(3.0)	**180742-007**	**21-Jul-05**	**VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)**	**Soil**
LF6EX139(7.5)	**180742-008**	**21-Jul-05**	**PAHs (8270C-SIM), TPH-Diesel/FO (8015B)**	**Soil**
LF6EX140(5.0)	**180742-009**	**21-Jul-05**	**PAHs (8270C-SIM), TPH-Diesel/FO (8015B)**	**Soil**
LF6EX141(8.0)	**180742-010**	**21-Jul-05**	**PAHs (8270C-SIM), TPH-Diesel/FO (8015B)**	**Soil**
LF6EX142(15.0)	**180742-011**	**21-Jul-05**	**PAHs (8270C-SIM), TPH-Diesel/FO (8015B)**	**Soil (5)**
DUP(072105)	**180742-012**	**21-Jul-05**	**PAHs (8270C-SIM), TPH-Diesel/FO (8015B)**	**FD (5)**
LF6WW200	180879-001	24-Jun-05	Total Metals (6020)	Water
LF6SW206	180879-002	22-Jul-05	Dissolved Metals (6020, 7470A)	Water (6)
DUP(072205)	180879-003	22-Jul-05	Dissolved Metals (6020, 7470A)	FD (6)

Table 1
Sample Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Site Sample ID	Laboratory Sample ID	Date Sampled	Analyses	Sample Type
LF6SP108	180943-001	22-Jul-05	WET Metals (6010B, 7470A)	Soil
LF6SP108	181064-001	22-Jul-05	TCLP Lead (6010B)	Soil
LF6EX103(3.0)	181272-001	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX143(24.5)	181272-002	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX144(23.0)	181272-003	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX145(6.0)	181272-004	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX146(16.0)	181272-005	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX147(1.0)	181272-006	15-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX148(25.5)	181435-001	23-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil (7)
DUP(082305)	181435-002	23-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	FD (7)
LF6EX149(5.0)	181435-003	23-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX150(5.0)	181469-001	25-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX151(6.5)	181469-002	25-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX152(1.5)	181469-003	25-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX153(2.0)	181469-004	25-Aug-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX154(10.0)	181894-001	15-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX155(7.0)	181894-002	15-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX156(2.0)	181894-003	15-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX157(5.5)	181894-004	15-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX158(1.0)	181894-005	15-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil
LF6EX100(6.5)	182169-001	29-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil (8)
DUP(092905-1)	182169-002	29-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	FD (8)
LF6EX101(1.0)	182169-003	29-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	Soil (9)
DUP(092905)-2	182169-004	29-Sep-05	PCBs (8082), Total Metals (6010B, 7471A)	FD (9)
LF6EX159(1.0)	182169-005	29-Sep-05	VOCs (8260B), SVOCs (8270C), TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Herbicides (8151A), Total Metals (6010B, 7471A)	Soil
LF6EX162(21.5)	182539-001	18-Oct-05	Total Metals (6010B, 7471A)	Soil
LF6EX160(28.0)	182539-002	18-Oct-05	Total Metals (6010B, 7471A)	Soil
LF6EX161(27.5)	182539-003	18-Oct-05	Total Metals (6010B, 7471A)	Soil

Table 1
Sample Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Site Sample ID	Laboratory Sample ID	Date Sampled	Analyses	Sample Type
LF6SW209	182539-004	18-Oct-05	TPH-Diesel/FO (8015B), Dissolved Metals (6020, 7470A), General Chemistry Parameters (8)	Water
LF6SW208	182539-005	18-Oct-05	TPH-Diesel/FO (8015B), Dissolved Metals (6020, 7470A), General Chemistry Parameters (8)	Water (10)
DUP(101805)	182539-006	18-Oct-05	TPH-Diesel/FO (8015B), Dissolved Metals (6020, 7470A), General Chemistry Parameters (8)	FD (10)
LF6EX163(27.5)	182539-007	18-Oct-05	Total Metals (6010B, 7471A)	Soil
LF6EX164(8.0)	182539-008	18-Oct-05	Pesticides (8081A)	Soil
LF6SS303	182754-001	26-Oct-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), BTEX (8021B), Pesticides (8081A)	Soil
LF6SS304	182754-002	26-Oct-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), BTEX (8021B), Pesticides (8081A)	Soil
LF6SS305	182754-003	26-Oct-05	TPH-Gasoline (8015B), TPH-Diesel/FO (8015B), BTEX (8021B)	Soil
LF6SS306	182884-001	1-Nov-05	TPH-Diesel/FO (8015B), Pesticides (8081A)	Soil
LF6SP1109-F	183340-001	17-Nov-05	TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Total Metals (6010B/7471A)	Soil
LF6SP1109-C	183340-002	17-Nov-05	TPH-Diesel/FO (8015B), Pesticides (8081A), PCBs (8082), Total Metals (6010B/7471A)	Soil

VOCs: Volatile Organic Compounds
SVOCs: Semi-volatile Organic Compounds
PAHs: Polynuclear Aromatic Hydrocarbons
TPH: Total Petroleum Hydrocarbons
FO: Fuel Oil
BTEX: Benzene, Toluene, Ethylbenzene, Xylenes
PCBs: Polychlorinated Biphenyls
WET: Waste Extraction Test
TCLP: Toxicity Characteristic Leaching Procedure
FD: Field duplicate of previous numbered sample, (1), (2), etc.
BOLD: Bold typeface indicates samples/analyses that received full (Level IV) data validation

General Chemistry Parameters

(1) Cyanide (335.2)
(2) Sulfide (376.2)
(3) Oil & Grease (1664A)
(4) pH (SW9040B/9045C)
(5) Reactive Cyanide (SW-846 CH 7)
(6) Reactive Sulfide (SW-846 CH 7)
(7) Ignitability (SW-846 CH 7)
(8) Hexavalent Chromium (7196A)

Table 2
Qualified Data Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX102(3.0)	180081-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX102(3.0)	180081-001	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX102(3.0)	180081-001	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX102(3.0)	180081-001	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX102(3.0)	180081-001	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX104(2.0)	180081-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX104(2.0)	180081-003	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX104(2.0)	180081-003	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX104(2.0)	180081-003	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX104(2.0)	180081-003	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX105(1.0)	180081-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX105(1.0)	180081-004	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX105(1.0)	180081-004	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX105(1.0)	180081-004	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX105(1.0)	180081-004	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX106(1.0)	180081-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX106(1.0)	180081-005	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX106(1.0)	180081-005	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX106(1.0)	180081-005	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX106(1.0)	180081-005	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX107(0.5)	180081-006	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX107(0.5)	180081-006	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX107(0.5)	180081-006	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX107(0.5)	180081-006	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX107(0.5)	180081-006	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX108(3.0)	180081-007	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX108(3.0)	180081-007	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX108(3.0)	180081-007	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX108(3.0)	180081-007	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX108(3.0)	180081-007	6010B	Nickel	J-	MS/MSD percent recovery failure
LF6EX109(0.5)	180081-008	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX109(0.5)	180081-008	6010B	Barium	J-	MS/MSD percent recovery failure
LF6EX109(0.5)	180081-008	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX109(0.5)	180081-008	6010B	Chromium	J-	MS/MSD percent recovery failure
LF6EX109(0.5)	180081-008	6010B	Nickel	J-	MS/MSD percent recovery failure
FS6WW200	180216-001	335.2	Cyanide	UJ	MS/MSD percent recovery failure
LF6EX110(1.0)	180219-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX110(1.0)	180219-001	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX110(1.0)	180219-001	6010B	Vanadium	J-	MS/MSD percent recovery failure

Table 2
Qualified Data Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX110(1.0)	180219-001	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX110(1.0)	180219-001	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX110(1.0)	180219-001	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX111(2.0)	180219-002	8270C	Di-n-octylphthalate	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Benzo(b)fluoranthene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Benzo(k)fluoranthene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Benzo(a)pyrene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Indeno(1,2,3-cd)pyrene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Dibenz(a,h)anthracene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8270C	Benzo(g,h,i)perylene	UJ	Internal standard area count failure
LF6EX111(2.0)	180219-002	8015B	Diesel	J+	Surrogate percent recovery failure
LF6EX111(2.0)	180219-002	8015B	Fuel Oil	J+	Surrogate percent recovery failure
LF6EX111(2.0)	180219-002	8081A	4,4'-DDT	UJ	CCV %D failure, LCS %R failure
LF6EX111(2.0)	180219-002	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6EX111(2.0)	180219-002	8151A	2,4-D	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	2,4-DB	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	2,4,5-TP (Silvex)	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	2,4,5-T	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	Dalapon	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	Dicamba	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	Dichloroprop	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	Dinoseb	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	MCPA	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	8151A	MCPP	UJ	Missed extraction holding time
LF6EX111(2.0)	180219-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX111(2.0)	180219-002	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX111(2.0)	180219-002	6010B	Vanadium	J-	MS/MSD percent recovery failure
LF6EX111(2.0)	180219-002	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX111(2.0)	180219-002	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX111(2.0)	180219-002	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX112(1.5)	180219-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX112(1.5)	180219-003	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX112(1.5)	180219-003	6010B	Vanadium	J-	MS/MSD percent recovery failure
LF6EX112(1.5)	180219-003	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX112(1.5)	180219-003	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX112(1.5)	180219-003	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX113(1.0)	180219-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX113(1.0)	180219-004	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX113(1.0)	180219-004	6010B	Vanadium	J-	MS/MSD percent recovery failure

Table 2
Qualified Data Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX113(1.0)	180219-004	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX113(1.0)	180219-004	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX113(1.0)	180219-004	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX114(2.0)	180219-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX114(2.0)	180219-005	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX114(2.0)	180219-005	6010B	Vanadium	J-	MS/MSD percent recovery failure
LF6EX114(2.0)	180219-005	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX114(2.0)	180219-005	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX114(2.0)	180219-005	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX115(2.0)	180219-006	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX115(2.0)	180219-006	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX115(2.0)	180219-006	6010B	Vanadium	J-	MS/MSD percent recovery failure
LF6EX115(2.0)	180219-006	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX115(2.0)	180219-006	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX115(2.0)	180219-006	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX116(2.5)	180219-007	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX116(2.5)	180219-007	6010B	Lead	J-/J	MS/MSD %R failure/Serial dilution %D failure
LF6EX116(2.5)	180219-007	6010B	Vanadium	J-	MS/MSD percent recovery failure
LF6EX116(2.5)	180219-007	6010B	Zinc	J-	MS/MSD percent recovery failure
LF6EX116(2.5)	180219-007	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX116(2.5)	180219-007	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX117(7)	180285-001	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	beta-BHC	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	Heptachlor epoxid	UJ	Surrogate percent recovery failure
LF6EX117(7)	180285-001	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	beta-BHC	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	Heptachlor epoxid	UJ	Surrogate percent recovery failure
LF6EX118(15.5)	180285-002	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	beta-BHC	UJ	Surrogate percent recovery failure

Table 2
Qualified Data Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX119(7)	180307-001	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	Heptachlor epoxide	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX119(7)	180307-001	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6EX119(7)	180307-001	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6EX120(21.5)	180307-002	8270C	Benzoic acid	UJ	Continuing calibration verification percent difference failure
LF6EX120(21.5)	180307-002	8015B	Diesel	J-	MS/MSD percent recovery failure
LF6EX120(21.5)	180307-002	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	beta-BHC	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	Heptachlor epoxide	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX120(21.5)	180307-002	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6EX120(21.5)	180307-002	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6EX121(20)	180329-001	8082	PCB-1016	UJ	Surrogate percent recovery failure
LF6EX121(20)	180329-001	8082	PCB-1221	UJ	Surrogate percent recovery failure
LF6EX121(20)	180329-001	8082	PCB-1232	UJ	Surrogate percent recovery failure
LF6EX121(20)	180329-001	8082	PCB-1242	UJ	Surrogate percent recovery failure
LF6EX121(20)	180329-001	6010B	Antimony	J-	MS/MSD percent recovery failure
LF6EX121(20)	180329-001	6010B	Barium	J-	MS/MSD percent recovery failure
LF6SP101	180329-002	6010B	Antimony	J-	MS/MSD percent recovery failure
LF6SP101	180329-002	6010B	Barium	J-	MS/MSD percent recovery failure
LF6SP103	180373-002	8082	PCB-1016	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1221	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1232	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1242	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1248	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1254	UJ	Surrogate percent recovery failure
LF6SP103	180373-002	8082	PCB-1260	UJ	Surrogate percent recovery failure
LF6EX125(10.0)	180456-001	6010B	Lead	J-	MS/MSD percent recovery failure
DUP(070605)	180456-002	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX126(13.0)	180456-003	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX127(25.0)	180456-004	6010B	Lead	J-	MS/MSD percent recovery failure

Table 2
Qualified Data Summary
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX128(25.0)	180456-005	8270C	Benzo(k)fluoranthene	UJ	Continuing calibration verification percent difference failure
LF6EX128(25.0)	180456-005	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX130(6.0)	180485-002	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX131(6.0)	180485-003	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX132(9.0)	180485-004	6010B	Lead	J-	MS/MSD percent recovery failure
LF6EX133(2.5)	180485-005	6010B	Lead	J-	MS/MSD percent recovery failure
LF6SP104	180485-006	6010B	Lead	J-	MS/MSD percent recovery failure
LF6SP105	180485-007	6010B	Lead	J-	MS/MSD percent recovery failure
LF6SW202	180577-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6SW202	180577-001	6010B	Arsenic	U	Method blank contamination
LF6SW202	180577-001	6010B	Zinc	U	Method blank contamination
LF6WW203	180577-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6WW203	180577-002	6010B	Arsenic	U	Method blank contamination
LF6WW203	180577-002	6010B	Zinc	U	Method blank contamination
LF6WW203	180577-002	7470A	Mercury	U	Method blank contamination
LF6GW204	180615-001	6010B	Antimony	U	Method blank contamination
LF6GW204	180615-001	6010B	Copper	U	Method blank contamination
LF6WW205	180615-002	6010B	Antimony	U	Method blank contamination
LF6WW205	180615-002	6010B	Copper	U	Method blank contamination
LF6EX134(2.5)	180742-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX134(2.5)	180742-001	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX135(24.0)	180742-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX135(24.0)	180742-002	6010B	Vanadium	J+	MS/MSD percent recovery failure
DUP(072005)-1	180742-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
DUP(072005)-1	180742-003	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX136(11.0)	180742-004	8015B	Diesel	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8015B	Fuel Oil	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	beta-BHC	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	Heptachlor epoxide	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX136(11.0)	180742-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX136(11.0)	180742-004	6010B	Vanadium	J+	MS/MSD percent recovery failure
DUP(072005)-2	180742-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
DUP(072005)-2	180742-005	6010B	Vanadium	J+	MS/MSD percent recovery failure

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Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX137(4.0)	180742-006	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX137(4.0)	180742-006	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX138(3.0)	180742-007	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX138(3.0)	180742-007	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX142(15.0)	180742-011	8015B	Diesel	UJ	Surrogate percent recovery failure
LF6EX142(15.0)	180742-011	8015B	Fuel Oil	UJ	Surrogate percent recovery failure
LF6WW201	180818-001	6020	Molybdenum	U	Method blank contamination
LF6WW201	180818-001	6020	Zinc	J	Serial dilution percent difference failure
LF6SW202	180818-002	6020	Molybdenum	U	Method blank contamination
LF6SW202	180818-002	6020	Zinc	J	Serial dilution percent difference failure
LF6WW203	180818-003	6020	Iron	U	Method blank contamination
LF6WW203	180818-003	6020	Molybdenum	U	Method blank contamination
LF6WW203	180818-003	6020	Zinc	J	Serial dilution percent difference failure
LF6WW204	180818-004	6020	Iron	U	Method blank contamination
LF6WW204	180818-004	6020	Molybdenum	U	Method blank contamination
LF6WW204	180818-004	6020	Zinc	J	Serial dilution percent difference failure
LF6GW205	180818-005	6020	Iron	U	Method blank contamination
LF6GW205	180818-005	6020	Molybdenum	U	Method blank contamination
LF6GW205	180818-005	6020	Zinc	UJ	Serial dilution percent difference failure
LF6GW206	180818-006	6020	Molybdenum	U	Method blank contamination
LF6GW206	180818-006	6020	Zinc	J	Serial dilution percent difference failure
LF6WW200	180879-001	6020	Chromium	J	Serial dilution percent difference failure
LF6WW200	180879-001	6020	Molybdenum	J	Serial dilution percent difference failure
LF6SW206	180879-002	6020	Aluminum	U	Method blank contamination
LF6SW206	180879-002	6020	Chromium	J	Serial dilution percent difference failure
LF6SW206	180879-002	6020	Molybdenum	UJ	Method blank contamination, serial dilution %D failure
DUP(072205)	180879-003	6020	Aluminum	U	Method blank contamination
DUP(072205)	180879-003	6020	Chromium	J	Serial dilution percent difference failure
DUP(072205)	180879-003	6020	Molybdenum	UJ	Method blank contamination, serial dilution %D failure
LF6EX103(3.0)	181272-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX103(3.0)	181272-001	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX103(3.0)	181272-001	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX143(24.5)	181272-002	6010B	Antimony	J-	MS/MSD percent recovery failure
LF6EX143(24.5)	181272-002	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX143(24.5)	181272-002	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX144(23.0)	181272-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX144(23.0)	181272-003	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX144(23.0)	181272-003	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX145(6.0)	181272-004	6010B	Antimony	UJ	MS/MSD percent recovery failure

Table 2
Qualified Data Summary
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Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX145(6.0)	181272-004	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX145(6.0)	181272-004	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX146(16.0)	181272-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX146(16.0)	181272-005	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX146(16.0)	181272-005	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX147(1.0)	181272-006	8082	PCB-1254	J+	Surrogate percent recovery failure
LF6EX147(1.0)	181272-006	8082	PCB-1260	J+	Surrogate percent recovery failure
LF6EX147(1.0)	181272-006	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX147(1.0)	181272-006	6010B	Beryllium	J	Serial dilution percent difference failure
LF6EX147(1.0)	181272-006	6010B	Lead	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6EX150(5.0)	181469-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX150(5.0)	181469-001	6010B	Zinc	J+	MS/MSD percent recovery failure
LF6EX151(6.5)	181469-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX151(6.5)	181469-002	6010B	Zinc	J+	MS/MSD percent recovery failure
LF6EX152(1.5)	181469-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX152(1.5)	181469-003	6010B	Zinc	J+	MS/MSD percent recovery failure
LF6EX153(2.0)	181469-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX153(2.0)	181469-004	6010B	Zinc	J+	MS/MSD percent recovery failure
LF6EX154(10.0)	181894-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX154(10.0)	181894-001	7471A	Mercury	UJ	MS/MSD percent recovery failure
LF6EX154(10.0)	181894-001	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6EX154(10.0)	181894-001	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX155(7.0)	181894-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX155(7.0)	181894-002	7471A	Mercury	UJ	MS/MSD percent recovery failure
LF6EX155(7.0)	181894-002	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6EX155(7.0)	181894-002	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX156(2.0)	181894-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX156(2.0)	181894-003	7471A	Mercury	J-	MS/MSD percent recovery failure
LF6EX156(2.0)	181894-003	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6EX156(2.0)	181894-003	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX157(5.5)	181894-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX157(5.5)	181894-004	7471A	Mercury	J-	MS/MSD percent recovery failure
LF6EX157(5.5)	181894-004	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6EX157(5.5)	181894-004	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX158(1.0)	181894-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX158(1.0)	181894-005	7471A	Mercury	J-	MS/MSD percent recovery failure
LF6EX158(1.0)	181894-005	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6EX158(1.0)	181894-005	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX100(6.5)	182169-001	6010B	Antimony	UJ	MS/MSD percent recovery failure

Table 2
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Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX100(6.5)	182169-001	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX100(6.5)	182169-001	6010B	Silver	UJ	MS/MSD percent recovery failure
LF6EX100(6.5)	182169-001	6010B	Vanadium	J+	MS/MSD percent recovery failure
DUP(092905-1)	182169-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
DUP(092905-1)	182169-002	6010B	Arsenic	J	Serial dilution percent difference failure
DUP(092905-1)	182169-002	6010B	Silver	UJ	MS/MSD percent recovery failure
DUP(092905-1)	182169-002	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX101(1.0)	182169-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX101(1.0)	182169-003	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX101(1.0)	182169-003	6010B	Silver	UJ	MS/MSD percent recovery failure
LF6EX101(1.0)	182169-003	6010B	Vanadium	J+	MS/MSD percent recovery failure
DUP(092905)-2	182169-004	6010B	Antimony	UJ	MS/MSD percent recovery failure
DUP(092905)-2	182169-004	6010B	Arsenic	J	Serial dilution percent difference failure
DUP(092905)-2	182169-004	6010B	Silver	UJ	MS/MSD percent recovery failure
DUP(092905)-2	182169-004	6010B	Vanadium	J+	MS/MSD percent recovery failure
LF6EX159(1.0)	182169-005	8081A	alpha-BHC	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	beta-BHC	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	delta-BHC	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	gamma-BHC	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Heptachlor	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Aldrin	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Heptachlor epoxid‹	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Endosulfan I	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Dieldrin	J-	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	4,4'-DDE	J-	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Endrin	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Endosulfan II	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	4,4'-DDD	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Endosulfan sulfate	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	4,4'-DDT	J-	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Methoxychlor	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Endrin aldehyde	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	alpha-Chlordane	J-	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	gamma-Chlordane	J-	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	8081A	Toxaphene	UJ	Surrogate percent recovery failure
LF6EX159(1.0)	182169-005	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX159(1.0)	182169-005	6010B	Arsenic	J	Serial dilution percent difference failure
LF6EX159(1.0)	182169-005	6010B	Silver	UJ	MS/MSD percent recovery failure
LF6EX159(1.0)	182169-005	6010B	Vanadium	J+	MS/MSD percent recovery failure

Table 2
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Sample ID	Laboratory ID	Analysis Method	Compound	Qualifier	Reason
LF6EX162(21.5)	182539-001	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX160(28.0)	182539-002	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX161(27.5)	182539-003	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6SW209	182539-004	6020	Aluminum	UJ	Method blank contamination, MS/MSD RPD failure
LF6SW209	182539-004	6020	Calcium	J+	MS/MSD percent recovery failure
LF6SW208	182539-005	6020	Aluminum	UJ	Method blank contamination, MS/MSD RPD failure
LF6SW208	182539-005	6020	Antimony	U	Method blank contamination
LF6SW208	182539-005	6020	Calcium	J+	MS/MSD percent recovery failure
DUP(101805)	182539-006	6020	Aluminum	UJ	Method blank contamination, MS/MSD RPD failure
DUP(101805)	182539-006	6020	Calcium	J+	MS/MSD percent recovery failure
LF6EX163(27.5)	182539-007	6010B	Antimony	UJ	MS/MSD percent recovery failure
LF6EX164(8.0)	182539-008	8081A	Endrin aldehyde	U	Method blank contamination
LF6EX164(8.0)	182539-008	8081A	beta-BHC	UJ	Initial calibration %RSD failure, continuing calibration %D failure
LF6EX164(8.0)	182539-008	8081A	delta-BHC	UJ	Initial calibration %RSD failure, continuing calibration %D failure
LF6SS303	182754-001	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6SS303	182754-001	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6SS304	182754-002	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6SS304	182754-002	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6SS306	182884-001	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6SS306	182884-001	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6SS306	182884-001	8081A	Endosulfan sulfate	UJ	Continuing calibration verification percent difference failure
LF6SP1109-F	183340-001	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6SP1109-F	183340-001	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6SP1109-F	183340-001	6010B	Antimony	R	MS/MSD percent recovery failure
LF6SP1109-F	183340-001	6010B	Barium	J+	MS/MSD percent recovery failure
LF6SP1109-F	183340-001	6010B	Cobalt	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6SP1109-F	183340-001	6010B	Copper	J	Serial dilution percent difference failure
LF6SP1109-F	183340-001	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6SP1109-F	183340-001	6010B	Silver	UJ	MS/MSD percent recovery failure
LF6SP1109-C	183340-002	8081A	4,4'-DDT	UJ	Continuing calibration verification percent difference failure
LF6SP1109-C	183340-002	8081A	Methoxychlor	UJ	Continuing calibration verification percent difference failure
LF6SP1109-C	183340-002	8015B	Diesel	J+	MS/MSD percent recovery failure
LF6SP1109-C	183340-002	6010B	Antimony	R	MS/MSD percent recovery failure
LF6SP1109-C	183340-002	6010B	Barium	J+	MS/MSD percent recovery failure
LF6SP1109-C	183340-002	6010B	Cobalt	J+	MS/MSD %R failure, MS/MSD RPD failure
LF6SP1109-C	183340-002	6010B	Copper	J	Serial dilution percent difference failure
LF6SP1109-C	183340-002	6010B	Nickel	J+	MS/MSD percent recovery failure
LF6SP1109-C	183340-002	6010B	Silver	UJ	MS/MSD percent recovery failure

Table 3
Summary of Field Duplicates
Landfill 6 Sampling Event
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Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6EX125(10.0)	180456-001	Soil	Antimony	3.2	DUP(070605)	180456-002	ND< 3.3	NC
LF6EX125(10.0)	180456-001	Soil	Arsenic	3.9	DUP(070605)	180456-002	4.3	-9.8%
LF6EX125(10.0)	180456-001	Soil	Barium	64	DUP(070605)	180456-002	76	-17%
LF6EX125(10.0)	180456-001	Soil	Beryllium	0.22	DUP(070605)	180456-002	0.22	0%
LF6EX125(10.0)	180456-001	Soil	Cadmium	0.62	DUP(070605)	180456-002	0.78	-23%
LF6EX125(10.0)	180456-001	Soil	Chromium	33	DUP(070605)	180456-002	54	-48%
LF6EX125(10.0)	180456-001	Soil	Cobalt	5.8	DUP(070605)	180456-002	7.1	-20%
LF6EX125(10.0)	180456-001	Soil	Copper	20	DUP(070605)	180456-002	22	-9.5%
LF6EX125(10.0)	180456-001	Soil	Lead	160	DUP(070605)	180456-002	56	**96%**
LF6EX125(10.0)	180456-001	Soil	Mercury	0.084	DUP(070605)	180456-002	0.17	**-68%**
LF6EX125(10.0)	180456-001	Soil	Molybdenum	ND	DUP(070605)	180456-002	ND	NA
LF6EX125(10.0)	180456-001	Soil	Nickel	28	DUP(070605)	180456-002	40	-35%
LF6EX125(10.0)	180456-001	Soil	Selenium	0.86	DUP(070605)	180456-002	0.93	-7.8%
LF6EX125(10.0)	180456-001	Soil	Silver	ND	DUP(070605)	180456-002	ND	NA
LF6EX125(10.0)	180456-001	Soil	Thallium	ND	DUP(070605)	180456-002	ND	NA
LF6EX125(10.0)	180456-001	Soil	Vanadium	23	DUP(070605)	180456-002	30	-26%
LF6EX125(10.0)	180456-001	Soil	Zinc	92	DUP(070605)	180456-002	130	-34%
LF6EX135(24.0)	180742-002	Soil	All VOCs	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	All SVOCs	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Diesel (C12-C24)	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Fuel Oil (C24-C36)	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	All Pesticides	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	All PCBs	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	All Herbicides	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Antimony	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Arsenic	3.2	DUP(072005)-1	180742-003	3.2	0%
LF6EX135(24.0)	180742-002	Soil	Barium	57	DUP(072005)-1	180742-003	57	0%
LF6EX135(24.0)	180742-002	Soil	Beryllium	0.31	DUP(072005)-1	180742-003	0.34	-9.2%

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Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6EX135(24.0)	180742-002	Soil	Cadmium	0.87	DUP(072005)-1	180742-003	0.84	3.5%
LF6EX135(24.0)	180742-002	Soil	Chromium	85	DUP(072005)-1	180742-003	80	6.1%
LF6EX135(24.0)	180742-002	Soil	Cobalt	7.9	DUP(072005)-1	180742-003	8.6	-8.5%
LF6EX135(24.0)	180742-002	Soil	Copper	6.7	DUP(072005)-1	180742-003	6.6	1.5%
LF6EX135(24.0)	180742-002	Soil	Lead	3.1	DUP(072005)-1	180742-003	3.1	0%
LF6EX135(24.0)	180742-002	Soil	Mercury	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Molybdenum	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Nickel	48	DUP(072005)-1	180742-003	51	-6.1%
LF6EX135(24.0)	180742-002	Soil	Selenium	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Silver	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Thallium	ND	DUP(072005)-1	180742-003	ND	NA
LF6EX135(24.0)	180742-002	Soil	Vanadium	66	DUP(072005)-1	180742-003	61	7.9%
LF6EX135(24.0)	180742-002	Soil	Zinc	28	DUP(072005)-1	180742-003	27	3.6%
LF6EX136(11.0)	180742-004	Soil	All VOCs	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	All SVOCs	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Diesel (C12-C24)	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Fuel Oil (C24-C36)	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	All Pesticides	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	All PCBs	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	All Herbicides	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Antimony	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Arsenic	1.8	DUP(072005)-2	180742-005	3.2	**-56%**
LF6EX136(11.0)	180742-004	Soil	Barium	52	DUP(072005)-2	180742-005	58	-11%
LF6EX136(11.0)	180742-004	Soil	Beryllium	0.27	DUP(072005)-2	180742-005	0.34	-23%
LF6EX136(11.0)	180742-004	Soil	Cadmium	0.9	DUP(072005)-2	180742-005	0.92	-2.2%
LF6EX136(11.0)	180742-004	Soil	Chromium	110	DUP(072005)-2	180742-005	130	-17%
LF6EX136(11.0)	180742-004	Soil	Cobalt	12	DUP(072005)-2	180742-005	6.6	**58%**
LF6EX136(11.0)	180742-004	Soil	Copper	5.1	DUP(072005)-2	180742-005	5.9	-15%

Table 3
Summary of Field Duplicates
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6EX136(11.0)	180742-004	Soil	Lead	3.1	DUP(072005)-2	180742-005	3.4	-9.2%
LF6EX136(11.0)	180742-004	Soil	Mercury	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Molybdenum	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Nickel	72	DUP(072005)-2	180742-005	71	1.4%
LF6EX136(11.0)	180742-004	Soil	Selenium	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Silver	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Thallium	ND	DUP(072005)-2	180742-005	ND	NA
LF6EX136(11.0)	180742-004	Soil	Vanadium	64	DUP(072005)-2	180742-005	70	-9.0%
LF6EX136(11.0)	180742-004	Soil	Zinc	28	DUP(072005)-2	180742-005	30	-6.9%
LF6EX142(15.0)	180742-011	Soil	All PAHs	ND	DUP(072105)	180742-012	ND	NA
LF6EX142(15.0)	180742-011	Soil	Diesel (C12-C24)	ND	DUP(072105)	180742-012	ND	NA
LF6EX142(15.0)	180742-011	Soil	Fuel Oil (C24-C36)	ND	DUP(072105)	180742-012	ND	NA
LF6SW206	180779-001	Water	Gasoline (C7-C12)	ND	DUP(072205)	180779-002	ND	NA
LF6SW206	180779-001	Water	Diesel (C12-C24)	ND	DUP(072205)	180779-002	ND	NA
LF6SW206	180779-001	Water	Fuel Oil (C24-C36)	ND	DUP(072205)	180779-002	ND	NA
LF6SW206	180779-001	Water	All PCBs	ND	DUP(072205)	180779-002	ND	NA
LF6SW206	180779-001	Water	Antimony	1.1	DUP(072205)	180779-002	ND< 1.0	NC
LF6SW206	180779-001	Water	Barium	58	DUP(072205)	180779-002	58	0%
LF6SW206	180779-001	Water	Calcium	52000	DUP(072205)	180779-002	53000	-1.9%
LF6SW206	180779-001	Water	Copper	2.8	DUP(072205)	180779-002	2.5	11%
LF6SW206	180779-001	Water	Iron	120	DUP(072205)	180779-002	110	8.7%
LF6SW206	180779-001	Water	Magnesium	36000	DUP(072205)	180779-002	37000	-2.7%
LF6SW206	180779-001	Water	Manganese	55	DUP(072205)	180779-002	53	3.7%
LF6SW206	180779-001	Water	Potassium	2100	DUP(072205)	180779-002	2000	4.9%
LF6SW206	180779-001	Water	Selenium	8.6	DUP(072205)	180779-002	ND< 5.0	NC
LF6SW206	180779-001	Water	Sodium	42000	DUP(072205)	180779-002	43000	-2.4%
LF6SW206	180779-001	Water	All others	ND	DUP(072205)	180779-002	ND	NA
LF6SW206	180879-002	Water	Aluminum	7.7	DUP(072205)	180879-003	7.9	-2.6%

Table 3
Summary of Field Duplicates
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6SW206	180879-002	Water	Antimony	0.96	DUP(072205)	180879-003	0.43	**76%**
LF6SW206	180879-002	Water	Arsenic	ND	DUP(072205)	180879-003	ND	NA
LF6SW206	180879-002	Water	Barium	55	DUP(072205)	180879-003	56	-1.8%
LF6SW206	180879-002	Water	Beryllium	0.061	DUP(072205)	180879-003	ND< 0.25	NC
LF6SW206	180879-002	Water	Cadmium	ND	DUP(072205)	180879-003	ND	NA
LF6SW206	180879-002	Water	Calcium	55000	DUP(072205)	180879-003	51000	7.5%
LF6SW206	180879-002	Water	Chromium	0.73	DUP(072205)	180879-003	1.2	-49%
LF6SW206	180879-002	Water	Cobalt	0.36	DUP(072205)	180879-003	0.34	5.7%
LF6SW206	180879-002	Water	Copper	2.5	DUP(072205)	180879-003	2.5	0%
LF6SW206	180879-002	Water	Iron	230	DUP(072205)	180879-003	220	4.4%
LF6SW206	180879-002	Water	Lead	0.25	DUP(072205)	180879-003	0.25	0%
LF6SW206	180879-002	Water	Mercury	ND	DUP(072205)	180879-003	ND	NA
LF6SW206	180879-002	Water	Magnesium	38000	DUP(072205)	180879-003	35000	8.2%
LF6SW206	180879-002	Water	Manganese	53	DUP(072205)	180879-003	56	-5.5%
LF6SW206	180879-002	Water	Molybdenum	0.32	DUP(072205)	180879-003	0.27	17%
LF6SW206	180879-002	Water	Nickel	4.5	DUP(072205)	180879-003	4.5	0%
LF6SW206	180879-002	Water	Potassium	1600	DUP(072205)	180879-003	1700	-6.1%
LF6SW206	180879-002	Water	Selenium	0.37	DUP(072205)	180879-003	0.37	0%
LF6SW206	180879-002	Water	Silver	0.081	DUP(072205)	180879-003	0.06	30%
LF6SW206	180879-002	Water	Sodium	41000	DUP(072205)	180879-003	38000	7.6%
LF6SW206	180879-002	Water	Thallium	1.1	DUP(072205)	180879-003	0.42	**89%**
LF6SW206	180879-002	Water	Vanadium	1.1	DUP(072205)	180879-003	1.2	-8.7%
LF6SW206	180879-002	Water	Zinc	11	DUP(072205)	180879-003	14	-24%
LF6EX148(25.5)	181435-001	Soil	All PCBs	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Antimony	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Arsenic	2.6	DUP(082305)	181435-002	2.2	17%
LF6EX148(25.5)	181435-001	Soil	Barium	87	DUP(082305)	181435-002	86	1.2%
LF6EX148(25.5)	181435-001	Soil	Beryllium	0.4	DUP(082305)	181435-002	0.36	11%

Table 3
Summary of Field Duplicates
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6EX148(25.5)	181435-001	Soil	Cadmium	0.8	DUP(082305)	181435-002	0.79	1.3%
LF6EX148(25.5)	181435-001	Soil	Chromium	100	DUP(082305)	181435-002	91	9.4%
LF6EX148(25.5)	181435-001	Soil	Cobalt	6.7	DUP(082305)	181435-002	7	-4.4%
LF6EX148(25.5)	181435-001	Soil	Copper	11	DUP(082305)	181435-002	8.9	21%
LF6EX148(25.5)	181435-001	Soil	Lead	4.4	DUP(082305)	181435-002	4.3	2.3%
LF6EX148(25.5)	181435-001	Soil	Mercury	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Molybdenum	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Nickel	72	DUP(082305)	181435-002	73	-1.4%
LF6EX148(25.5)	181435-001	Soil	Selenium	0.4	DUP(082305)	181435-002	0.52	-26%
LF6EX148(25.5)	181435-001	Soil	Silver	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Thallium	ND	DUP(082305)	181435-002	ND	NA
LF6EX148(25.5)	181435-001	Soil	Vanadium	67	DUP(082305)	181435-002	60	11%
LF6EX148(25.5)	181435-001	Soil	Zinc	30	DUP(082305)	181435-002	31	-3.3%
LF6EX100(6.5)	182169-001	Soil	All PCBs	ND	DUP(092905-1)	182169-002	ND	NA
LF6EX100(6.5)	182169-001	Soil	Antimony	ND	DUP(092905-1)	182169-002	ND	NA
LF6EX100(6.5)	182169-001	Soil	Arsenic	5.3	DUP(092905-1)	182169-002	5	5.8%
LF6EX100(6.5)	182169-001	Soil	Barium	110	DUP(092905-1)	182169-002	130	-17%
LF6EX100(6.5)	182169-001	Soil	Beryllium	0.42	DUP(092905-1)	182169-002	0.41	2.4%
LF6EX100(6.5)	182169-001	Soil	Cadmium	1	DUP(092905-1)	182169-002	0.99	1.0%
LF6EX100(6.5)	182169-001	Soil	Chromium	74	DUP(092905-1)	182169-002	71	4.1%
LF6EX100(6.5)	182169-001	Soil	Cobalt	11	DUP(092905-1)	182169-002	13	-17%
LF6EX100(6.5)	182169-001	Soil	Copper	14	DUP(092905-1)	182169-002	13	7.4%
LF6EX100(6.5)	182169-001	Soil	Lead	5.3	DUP(092905-1)	182169-002	7.2	-30%
LF6EX100(6.5)	182169-001	Soil	Mercury	ND< 0.026	DUP(092905-1)	182169-002	0.04	NC
LF6EX100(6.5)	182169-001	Soil	Molybdenum	ND	DUP(092905-1)	182169-002	ND	NA
LF6EX100(6.5)	182169-001	Soil	Nickel	46	DUP(092905-1)	182169-002	45	2.2%
LF6EX100(6.5)	182169-001	Soil	Selenium	ND	DUP(092905-1)	182169-002	ND	NA
LF6EX100(6.5)	182169-001	Soil	Silver	ND	DUP(092905-1)	182169-002	ND	NA

Table 3
Summary of Field Duplicates
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Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6EX100(6.5)	182169-001	Soil	Thallium	0.5	DUP(092905-1)	182169-002	ND	NC
LF6EX100(6.5)	182169-001	Soil	Vanadium	69	DUP(092905-1)	182169-002	65	6.0%
LF6EX100(6.5)	182169-001	Soil	Zinc	37	DUP(092905-1)	182169-002	39	-5.3%
LF6EX101(1.0)	182169-003	Soil	All PCBs	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Antimony	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Arsenic	3.9	DUP(092905)-2	182169-004	4.1	-5.0%
LF6EX101(1.0)	182169-003	Soil	Barium	72	DUP(092905)-2	182169-004	65	10%
LF6EX101(1.0)	182169-003	Soil	Beryllium	0.22	DUP(092905)-2	182169-004	0.19	15%
LF6EX101(1.0)	182169-003	Soil	Cadmium	0.71	DUP(092905)-2	182169-004	0.64	10%
LF6EX101(1.0)	182169-003	Soil	Chromium	50	DUP(092905)-2	182169-004	48	4.1%
LF6EX101(1.0)	182169-003	Soil	Cobalt	9	DUP(092905)-2	182169-004	8.3	8.1%
LF6EX101(1.0)	182169-003	Soil	Copper	16	DUP(092905)-2	182169-004	11	37%
LF6EX101(1.0)	182169-003	Soil	Lead	23	DUP(092905)-2	182169-004	21	9.1%
LF6EX101(1.0)	182169-003	Soil	Mercury	0.049	DUP(092905)-2	182169-004	0.041	18%
LF6EX101(1.0)	182169-003	Soil	Molybdenum	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Nickel	35	DUP(092905)-2	182169-004	31	12%
LF6EX101(1.0)	182169-003	Soil	Selenium	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Silver	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Thallium	ND	DUP(092905)-2	182169-004	ND	NA
LF6EX101(1.0)	182169-003	Soil	Vanadium	53	DUP(092905)-2	182169-004	51	3.8%
LF6EX101(1.0)	182169-003	Soil	Zinc	40	DUP(092905)-2	182169-004	33	19%
LF6SW208	182539-005	Soil	Diesel (C12-C24)	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Soil	Fuel Oil (C24-C36)	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Aluminum	23	DUP(101805)	182539-006	18	24%
LF6SW208	182539-005	Water	Antimony	0.33	DUP(101805)	182539-006	2.6	-155%
LF6SW208	182539-005	Water	Arsenic	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Barium	72	DUP(101805)	182539-006	67	7.2%
LF6SW208	182539-005	Water	Beryllium	ND	DUP(101805)	182539-006	ND	NA

APPENDIX K

UCL AND WILCOXIN RANK-SUM TEST METHODOLOGIES

APPENDIX K

Wilcoxin Rank-Sum Test Analysis

The Wilcoxin Rank-Sum test (WRS; also known as the Mann-Whitney or the Wilcoxin Mann-Whitney test) was used to help determine whether reported concentrations of cadmium and selenium were within the range of ambient background concentrations. The WRS test is widely adaptable to various data sets because it is a nonparametric test. That is, it does not require any assumptions about the distribution of the sampled populations or estimations of the variance or mean. The two data sets need not be drawn from the same distribution, and although it is assumed that the distributions of the two populations are identical in shape (variance), the distributions need not be symmetric. The WRS does not use the actual concentration measurements. Instead, the ranks of the measurements are used. The WRS can handle a moderate number of non-detects by treating them as ties, and is robust with respect to outliers because the analysis is conducted in terms of ranks of the data. This limits the influence of outliers because a given data point can be no more extreme than the first or last rank.

As discussed in Section 4.1.4, concentrations of cadmium and selenium were greater than the Remedial Action Plan (RAP; *Treadwell and Rollo, 2004*) clean closure criteria (i.e., both the maximum reported concentrations and the 95 percent UCL were greater than the cleanup levels established in the RAP). However, cleanup levels used to meet the clean closure criteria for these metals were based on background data collected for the Colma soil that underlies fill material at the site. Although background data sets are useful to assess whether metal concentrations are the result of contamination or are naturally-occurring, it is important to also evaluate specific metal exceedances to assess whether they are the result of contamination or from site-specific variations in background conditions

As stated previously stated, the Wilcoxin Rank-Sum test is widely adaptable to various data sets because it is a nonparametric test. That is, it does not require any assumptions about the distribution of the sampled populations or estimations of the variance or mean. The following was tested:

H_0: The population from which the two data sets have been drawn have the same mean (i.e., the site data are consistent with background levels)

H_A: The populations have different means (i.e., the values of the site data are consistently greater than those in the background data)

For this test, actual measurements are not employed. Instead, the ranks of the measurements are used. The data are ordered from lowest to highest, with the lowest value assigned rank 1, the next lowest value assigned rank 2, with the highest value assigned rank N, where

$$N = n_1 + n_2$$

when:

n_1 = number of samples in site data set

n_2 = number of samples in the background data set

When two or more observations have the same value, they are referred to as tied. The rank assigned to each of the tied ranks is the mean of the ranks that would have been assigned had they not been tied.

The Mann-Whitney statistic U' is calculated as (Gilbert, 1987)

$$U' = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

where R_2 is the sum of the ranks assigned to the background data set. If U' is as great as or greater than U_{α,n_1,n_2}, H_0 was rejected at the α level of significance. Where $n_1<n_2$; if $n_1>n_2$, U_{α,n_2,n_1} is used instead.

This method can only be used where the smaller sample size does not exceed 20 and the larger sample size does not exceed 40. However, for larger sample sizes, the distribution of U' approaches the normal distribution with a mean of

$$\mu_{U'} = \frac{n_1 n_2}{2}$$

and a standard error of

$$\sigma_{U'} = \sqrt{\frac{n_1 n_2 (N+1)}{12}}$$

Using a normal approximation, the significance Z, of U' can be calculated as

$$Z = \frac{U' - \mu_{U'} - 0.5}{\sigma_{U'}}$$

and Z can then be calculated as

$$Z = \frac{\left(n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2\right) - \left(\frac{n_1 n_2}{2}\right) - 0.5}{\sqrt{\frac{n_1 n_2 (N+1)}{12}}}$$

The value 0.5 is a correction for continuity to account for the fact that Z is a continuous distribution, but U' is a discrete distribution. If the normal approximation is used and tied ranks are present, the quantity ΣT is calculated as

$$\sum T = \sum \left(t_i^3 - t_i\right)$$

where t_i is the number of ties in a group of tied values, and the summation is performed over all groups of ties. The standard error is then calculated as

$$\sigma_{U'} = \sqrt{\frac{n_1 n_2}{N^2 - N} \bullet \frac{N^3 - N - \Sigma T}{12}}$$

and Z can then be calculated as

$$Z = \frac{\left(n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2\right) - \left(\frac{n_1 n_2}{2}\right) - 0.5}{\sqrt{\frac{n_1 n_2}{N^2 - N} \bullet \frac{N^3 - N - \sum\left(t_i^3 - t_i\right)}{12}}}$$

Because the t distribution with degrees of freedom $(\nu)=\infty$ is identical to the normal distribution, the critical value Z_α is equal to the critical value $t_{\alpha,\infty}$. When Z is as great as or greater than $t_{95,\infty}$ H_0 is rejected and the reported concentrations are not considered representative of background.

Discussion Of Upper Confidence Limit Methodology

The 95 percent upper confidence limit (UCL) on the arithmetic mean was calculated using the methodology described in EPA, 2002. The ProUCL software Version 3, developed by the EPA Office of Research and Development was utilized to calculate the appropriate 95 percent UCL. ProUCL tests for normality, lognormality, and gamma distributions of a data set and computes a conservative and stable 95 percent UCL of the population mean μ. The general hierarchy of the recommended methods for calculation of the 95 percent UCL is shown in the following figure:

UCL Method Flow Chart

Are data normal?	Yes →	Use Student's *t*
↓ No		
Are data log normal?	Yes →	Use Land, Chebyshev (MVUE), or Student's *t* (with small variance/skewness)
↓ No		
Is another distribution shape appropriate?	Yes →	Use distribution-specific method if available
↓ No		
Is sample size large?	Yes →	Use Central Limit Theorem-Adjusted (with small variance and mild skewness) or Chebyshev
↓	No →	Use Chebyshev, Bootstrap Resampling, or Jackknife

Table K2
Summary Table for the Computation of a 95 Percent UCL of the Unknown Mean, μ_1 of a Lognormal Population

$\hat{\sigma}$	*Sample Size, n*	*Recommendation*
$\hat{\sigma} < 0.5$	For all n	Student's-t, modified-t, or *H-UCL*
$0.5 \leq \hat{\sigma} < 1.0$	For all n	*H-UCL*
$1.0 \leq \hat{\sigma} < 1.5$	$n < 25$	95% Chebyshev *(MVUE) UCL*
	$n \geq 25$	*H-UCL*
$1.5 \leq \hat{\sigma} < 2.0$	$n < 20$	99% Chebyshev *(MVUE) UCL*
	$20 \leq n < 50$	95% Chebyshev *(MVUE) UCL*
	$n \geq 50$	*H-UCL*
$2.0 \leq \hat{\sigma} < 2.5$	$n < 20$	99% Chebyshev *(MVUE) UCL*
	$20 \leq n < 50$	97.5% Chebyshev *(MVUE) UCL*
	$50 \leq n < 70$	95% Chebyshev *(MVUE) UCL*
	$n \geq 70$	*H-UCL*
$2.5 > \hat{\sigma} < 3.0$	$n < 30$	Larger of (99% Chebyshev *(MVUE) UCL*, 99% Chebyshev(Mean, Sd))
	$30 \leq n < 70$	97.5% Chebyshev *(MVUE) UCL*
	$70 \leq n < 100$	95% Chebyshev *(MVUE) UCL*
	$n \geq 100$	*H-UCL*
$3.0 \leq \hat{\sigma} < 3.5$	$n < 15$	Hall's Bootstrap Method*
	$15 \leq n < 50$	Larger of (99% Chebyshev *(MVUE) UCL*, 99% Chebyshev(Mean, Sd))
	$50 \leq n < 100$	97.5% Chebyshev *(MVUE) UCL*
	$100 \leq n < 150$	95% Chebyshev *(MVUE) UCL*
	$n \geq 150$	*H-UCL*
$\hat{\sigma} > 3.5$	For all n	Use non-parametric methods*

If Hall's bootstrap method yields an erratic unrealistically large UCL value, than the UCL of the mean may be computed based upon the Chebyshev inequality.

U Values

Critical values of the Mann-Whitney U distibution where α=0.05

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1																				
2																				
3			9																	
4			12	15																
5		10	14	18	21															
6		12	16	21	25	29														
7		14	19	24	29	34	38													
8		15	21	27	32	38	43	49												
9		17	23	30	36	42	48	54	60											
10		19	26	33	39	46	53	60	66	73										
11		21	28	36	43	50	58	65	72	79	87									
12		22	31	39	47	55	63	70	78	86	94	102								
13		24	33	42	50	59	67	76	84	93	101	109	118							
14		25	35	45	54	63	72	81	90	99	108	117	126	135						
15		27	38	48	57	67	77	87	96	106	115	125	134	144	153					
16		29	40	50	61	71	82	92	102	112	122	132	143	153	163	173				
17		31	42	53	65	76	86	97	108	119	130	140	151	161	172	183	193			
18		32	45	56	68	80	91	103	114	125	137	148	159	170	182	193	204	215		
19	19	34	47	59	72	84	96	108	120	132	144	156	167	179	191	203	214	226	238	
20	20	36	49	62	75	88	101	113	126	138	151	163	176	188	200	213	225	237	250	262
21	21	37	52	65	79	92	106	119	132	145	158	171	184	197	210	223	236	248	261	274
22	22	39	54	68	82	96	110	124	138	152	165	179	192	206	219	233	246	260	273	276
23	23	41	56	71	86	101	115	130	144	158	172	186	201	215	229	243	257	271	285	299
24	24	42	59	74	90	105	120	135	150	165	179	194	209	223	238	253	267	282	296	311
25	25	44	61	77	93	109	125	140	156	171	186	202	217	232	247	263	278	293	308	323
26	26	46	63	80	97	113	129	146	162	178	194	209	225	241	257	273	288	304	320	335
27	27	47	66	83	100	117	134	151	168	184	201	217	234	250	266	283	299	315	331	348
28	28	49	68	86	104	122	139	156	174	191	208	225	242	259	276	292	309	326	343	360
29	29	51	70	89	107	126	144	162	179	197	215	232	250	268	285	302	320	337	355	372
30	30	53	73	92	111	130	149	167	185	204	222	240	258	276	294	312	330	348	366	384
31	31	54	75	95	115	134	153	172	191	210	229	248	267	285	304	322	341	359	378	396
32	32	56	77	98	118	138	158	178	197	217	236	256	275	294	313	332	351	370	390	409
33	33	58	80	101	122	142	163	183	203	223	243	263	283	303	323	342	362	382	401	421
34	34	59	82	104	125	147	168	188	209	230	250	271	291	312	332	352	372	393	413	433
35	35	61	84	107	129	151	172	194	215	236	257	279	299	320	341	362	383	404	424	445
36	36	63	87	110	132	155	177	199	221	243	265	286	308	329	351	372	393	415	436	457
37	37	64	89	113	136	159	182	205	227	249	272	294	316	338	360	382	404	426	448	469
38	38	66	91	116	140	163	187	210	233	256	279	302	324	347	369	392	414	437	459	482
39	38	68	94	118	143	167	191	215	239	262	286	309	332	356	379	402	425	448	471	
40	39	69	96	121	147	172	196	221	245	269	293	317	341	364	388	412	435	459	482	

MannWhitney Calculations for Selenium

Site	Background	Ranks (Site)	Ranks (Background)
0.14	0.456	19.5	40
0.11	0.400	3.5	29.5
0.58	1.660	44	60
0.4	0.416	29.5	34.5
0.68	0.416	48.5	34.5
1	0.416	53	34.5
0.56	0.416	42.5	34.5
0.59	0.416	45	34.5
0.56	0.416	42.5	34.5
0.15	0.250	24.5	27.5
0.135	0.250	16.5	27.5
0.145	0.449	22	38.5
0.125	0.449	8	38.5
0.68		48.5	
0.63		46	
0.13		11	
0.145		22	
0.82		51	
1.3		56	
1.6		59	
0.13		11	
0.135		16.5	
0.115		5.5	
1.2		55	
2		62	
1.5		58	
0.135		16.5	
0.1		1.5	
0.13		11	
0.65		47	
0.145		22	
0.41		31	
0.895		52	
1.4		57	
1.1		54	
1.7		61	
0.1325		14	
0.12		7	
0.115		5.5	
0.135		16.5	
0.46		41	
0.8		50	
0.11		3.5	
0.13		11	
0.1		1.5	
0.15		24.5	
0.175		26	
0.13		11	
0.14		19.5	

$n_1=$	49
$n_2=$	13
$R_1=$	1484.5
$R_2=$	468.5

$U_{\alpha(1)}=$	Use normalized distribution
$U'=$	259.5

Number of tied ranks=	6
$\Sigma T=$	474
$\mu_U=$	318.5
$N=$	62
$\sigma_U=$	57.8
$Z=$	-1.0299

Conclusion: The data from the site are within the range of normal background

MannWhitney Calculations for Cadmium

Site	Background		Ranks
0.995	0.515	65	24.5
0.675	0.515	38	24.5
0.4	0.800	12.5	49.5
0.61	0.800	33.5	49.5
0.76	0.800	43.5	49.5
0.71	0.800	40.5	49.5
0.48	0.800	15	49.5
0.61	0.800	33.5	49.5
0.65	0.515	37	24.5
1.1	0.515	68	24.5
0.86	0.500	55.5	20
0.53	0.100	28	4.5
0.78	0.100	45	4.5
0.59	0.100	32	4.5
0.4	0.220	12.5	8
1.1	0.100	68	4.5
1	0.444	66	14
0.55	0.500	30	20
0.76	0.371	43.5	11
0.84	0.100	53	4.5
0.88	0.235	60	9
1.2	0.493	72.5	17
0.95	0.100	62	4.5
1.1	0.500	68	20
1.2	0.500	72.5	20
1.2	0.500	72.5	20
0.55	1.200	30	72.5
0.098	1.200	1	72.5
0.52		27	
0.49		16	
0.62		35.5	
0.62		35.5	
0.7		39	
1.2		72.5	
0.96		63	
1.4		76	
0.855		54	
0.91		61	
0.55		30	
0.27		10	
0.795		46	
0.72		42	
0.71		40.5	
0.87		58	
0.87		58	
0.97		64	
0.87		58	
0.86		55.5	
1.5		77	

n_1= 49

n_2= 28

R_1= 2277

R_2= 726

$U_{\alpha(1)}$= Use normalized distribution

U'= 1052

Number of tied ranks= 6

ΣT= 918

μ_U= 686

N= 77

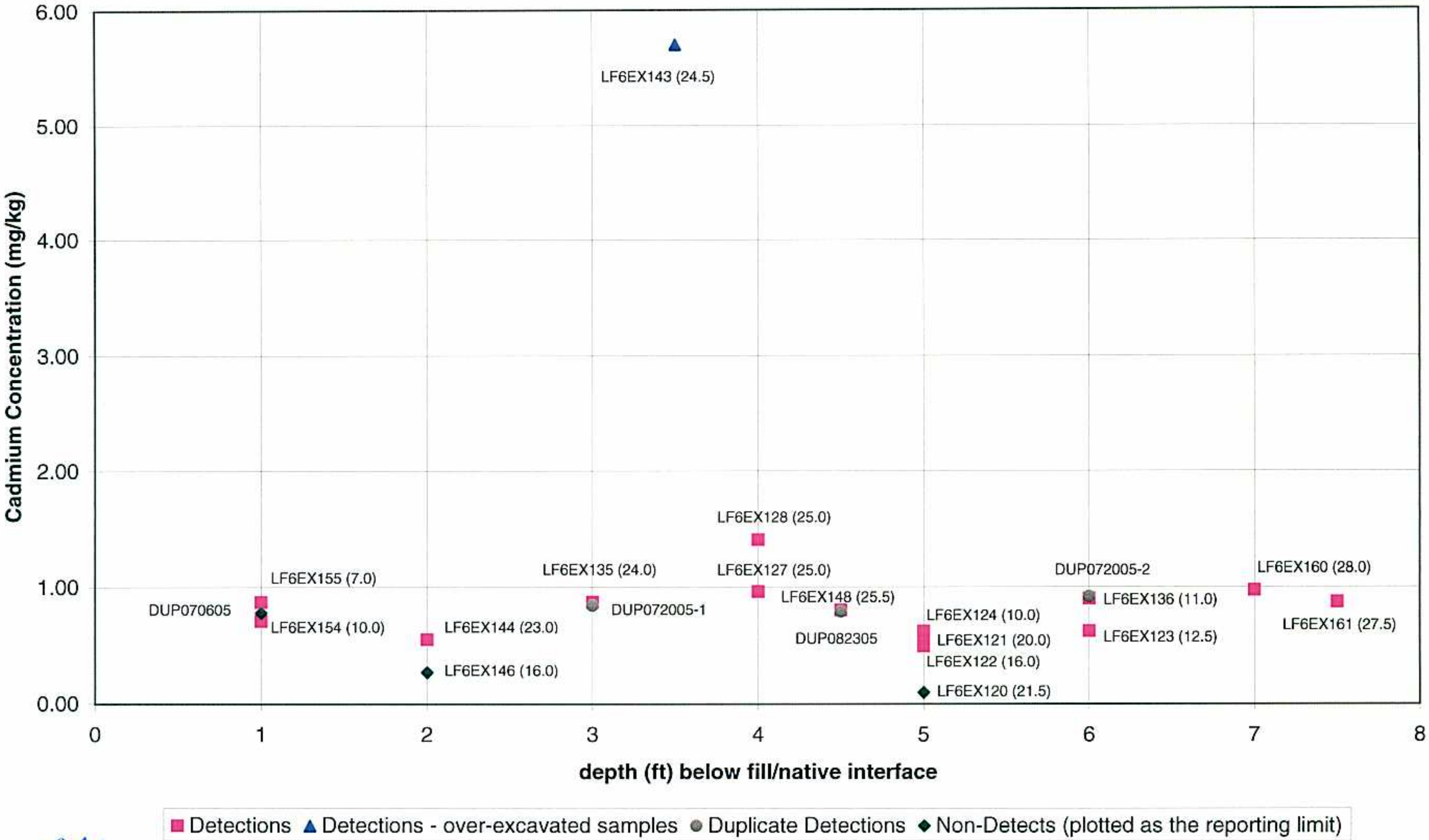
σ_U= 94.3

Z= 3.8743

Conclusion: The data from the site do not represent background

FIGURES

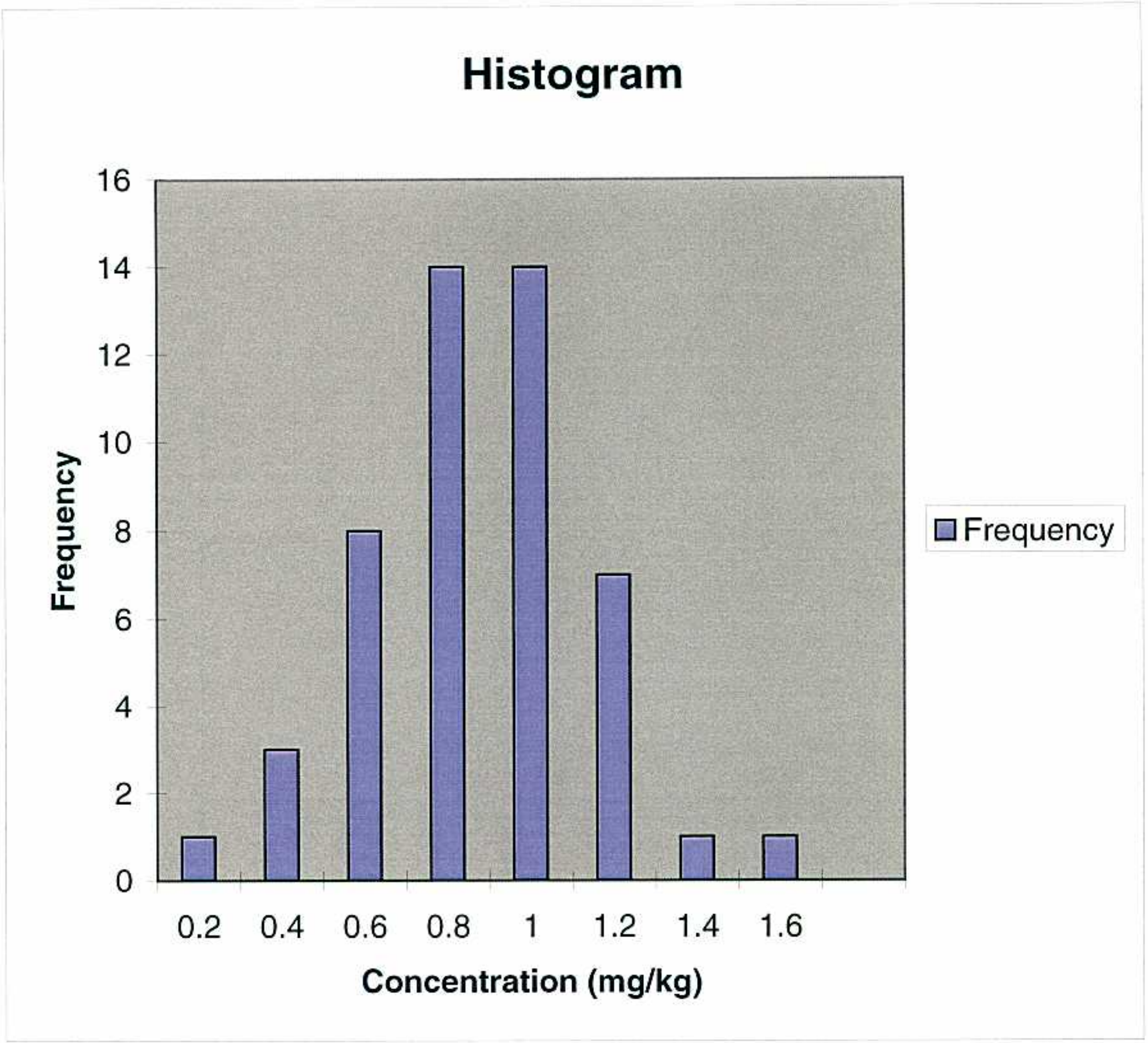
Figure K1 - Native Soil
Spatial Distribution of Cadmium



Checked GAL
Approved MOJ
MB61585_Fig K1-POSF
July 31, 2006

Figure K2

Cadmium Histogram



Checked GAL
Approved MJ
MB61585_Fig K2-POSF
July 31, 2006

Table 3
Summary of Field Duplicates
Landfill 6 Sampling Event
The Presidio of San Francisco, CA

Original Sample ID	Laboratory ID	Matrix	Compound	Original Results*	Duplicate Sample ID	Laboratory ID	Duplicate Results*	RPD
LF6SW208	182539-005	Water	Cadmium	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Calcium	46000	DUP(101805)	182539-006	45000	2.2%
LF6SW208	182539-005	Water	Chromium	20	DUP(101805)	182539-006	19	5.1%
LF6SW208	182539-005	Water	Cobalt	0.34	DUP(101805)	182539-006	0.33	3.0%
LF6SW208	182539-005	Water	Copper	1.9	DUP(101805)	182539-006	1.8	5.4%
LF6SW208	182539-005	Water	Iron	160	DUP(101805)	182539-006	140	13%
LF6SW208	182539-005	Water	Lead	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Mercury	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Magnesium	72000	DUP(101805)	182539-006	71000	1.4%
LF6SW208	182539-005	Water	Manganese	130	DUP(101805)	182539-006	120	8.0%
LF6SW208	182539-005	Water	Molybdenum	0.097	DUP(101805)	182539-006	0.092	5.3%
LF6SW208	182539-005	Water	Nickel	16	DUP(101805)	182539-006	15	6.5%
LF6SW208	182539-005	Water	Potassium	600	DUP(101805)	182539-006	560	6.9%
LF6SW208	182539-005	Water	Selenium	0.64	DUP(101805)	182539-006	ND	NC
LF6SW208	182539-005	Water	Silver	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Sodium	65000	DUP(101805)	182539-006	63000	3.1%
LF6SW208	182539-005	Water	Thallium	ND	DUP(101805)	182539-006	ND	NA
LF6SW208	182539-005	Water	Vanadium	3.4	DUP(101805)	182539-006	2.9	16%
LF6SW208	182539-005	Water	Zinc	13	DUP(101805)	182539-006	9.3	33%
LF6SW208	182539-005	Water	Hexavalent chromium	0.02	DUP(101805)	182539-006	0.02	0%

*Units for oganic and metals analyses in waters are ug/L; units for metals in analyses in soils are mg/kg.
RL: Reporting limit
PCBs: Polychlorinated Biphenyls
ND: Not detected
NC: Not calculated. The absolute difference between the sample result and the duplicate sample result is less than the reporting limit.
N/A: Not analyzed
NA: Not applicable. Calculation of the relative percent difference between the sample result and the duplicate sample result is not applicable.

APPENDIX L

RESULTS OF ANALYTICAL TESTING OF IMPORTED BACKFILL

Geologica and S&S Trucking Samples
California Academy of Sciences Backfill Import

geologica

DRAFT FINAL LETTER REPORT
SAMPLING AND TESTING IMPORTED DUNE SAND

Presidio of San Francisco
San Francisco, California

Submitted to:

The Presidio Trust
August 31, 2004

Prepared by:

Geologica Inc.

geo**logica**

Innovative Strategies for Managing Environmental Liability

August 30, 2004

The Presidio Trust
1750 Lincoln Boulevard
San Francisco, CA 94129

Attention: Mr. George A. Ford
Manager, Remedial Constructions

DRAFT Final Letter Report
GA-9 Stockpile Sampling and Testing
Imported Dune Sand
Presidio of San Francisco
San Francisco, California

Dear Mr. Ford:

1.0 INTRODUCTION AND PURPOSE

GEOLOGICA is pleased to submit this Letter Report summarizing the results of dune sand stockpile sampling and analytical testing services performed at the Presidio of San Francisco ("the Presidio") in San Francisco, California. Through mid-August 2004, approximately 21,000 cu yds of dune sand had been imported to the Presidio from construction excavations in Golden Gate Park in San Francisco. The stockpile is expected to eventually reach approximately 40,000 cu yds. The dune sand has been stockpiled at Graded Area 9 (GA-9) in the Presidio and is to be used for re-establishment of dune sand habitat at selected locations in the Presidio.

Based on information available, the dune sand is believed to be virgin material, un-impacted by any historical human activities. However, for purposes of documentation, and as a conservative measure, the Presidio Trust ("the Trust") requested that a limited sampling and testing program be conducted to "spot check" the stockpile to confirm its expected condition. The following sections summarize the general approach, the work performed, and the results of the analytical testing.

2.0 GENERAL TECHNICAL APPROACH

At the time of the sampling on July 30, 2004, approximately 15,000 cu yds of dune sand had been stockpiled at GA-9 in a roughly east-west trending pile approximately 240 feet long by 30 feet high by 50 feet wide (see **Figure 1**). As shown on **Figure 1**, the stockpile had two broad faces, one north-facing and one south-facing. The general approach was to collect four (4) uniformly-spaced, discrete samples along each of the two faces of the stockpile to allow for preparation of

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two 4-point composite samples to be tested for a broad suite of parameters. Results were compared to relevant clean-up levels established for the Presidio (EKI, 2002). GEOLOGICA performed all sampling in accordance with the Presidio Trust Quality Assurance Project Plan (QAPP)/Sampling and Analysis Plan (SAP) dated February 2001. Details of the scope of work and methodologies employed are discussed in **Section 3**.

3.0 SCOPE OF WORK AND METHODOLOGIES

Tasks undertaken are described in the following subsections:

3.1 Task 1 – Preliminary Activities

Task 1 included procurement and coordination with project subcontractors, including the analytical laboratory, Curtis & Tompkins, of Berkeley, CA, and the data validation subcontractor, DataVal, of San Rafael, CA, prior to fieldwork. Site access was facilitated by the Presidio Trust representative, Mr. George Ford. No special permits were required given the nature of the sampling.

3.2 Task 2 – Stockpile Visual Observations and Sampling

Task 2 included visual inspection of the stockpile. An effort was made to identify the presence of stockpile heterogeneities and/or potential contamination.

Sampling was conducted in accordance with *Presidio Trust – Environmental SOP No. 012, Bulk Material Sampling*. The eight (8) discrete samples (south face: GA9SS501 through GA9SS504; north face: GA9SS505 through GA9SS508) were collected at uniformly spaced locations on the two faces of the stockpile. In addition, on the south face, discrete sample duplicates (DUP073004-501 through DUP073004-504) were collected at each of the four locations to allow preparation of a duplicate composite sample. Sampling procedures were as follows: at each sampling location, GEOLOGICA field technician, Brian Aubry, R.G., C.E.G., cleared the upper 6 inches (0.5 feet) of surface dune sand with a dedicated, clean metal scoop. The scoop was then used to collect a discrete sample, which was placed in a laboratory-provided 8 oz glass sample jar with a plastic screw top. After collecting the sample, the jar was labeled for identification, and preserved in a cooler packed with ice to maintain a temperature of 4°C (+/- 2° C). All sampling equipment was cleaned prior to use; no decontamination was required between sample locations since dedicated scoops, cleaned prior to fieldwork and sealed in separate zip-lock bags, were used at each location.

3.3 Task 3 - Analytical Testing and Data Validation Program

Samples were hand delivered by GEOLOGICA immediately after sampling to Curtis & Tompkins of Berkeley, California for laboratory testing on a 48-hour rush turnaround basis with results to be provided in a Level III reporting format. Samples were composited by the laboratory as described on the chain-of-custody record. The laboratory was instructed to retain a portion of each discrete sample for potential future analysis, if warranted. The two composite samples and one duplicate were analyzed for the following suite of parameters:

- TPH – gasoline/BTEX C7-C12 by EPA Method 8015M/8020
- TPH - diesel C12-24 and TPH - motor oil C-24-36 by EPA Method 8015M
- Pesticides and PCBs by EPA Method 8081 and 8082
- Total Lead by ICP by EPA Method 6020

All testing was done in accordance with the Presidio Trust QAPP. TPH-diesel and motor oil testing included the silica gel cleanup procedure and all results were referenced to dry weight. Laboratory analytical results, in Level III reporting format, were delivered electronically on August 3, 2004 to DataVal of San Rafael, California for review.

4.0 RESULTS

The following sections detail the results of the field sampling, analytical testing, and data validation programs.

4.1 Stockpile Visual Observations

The stockpiled dune sand constituted a remarkably homogeneous, slightly moist, well-sorted, medium-grained dune sand, typical of windblown or wave-transported sand deposits. Virtually no organic debris or other matter was noted within the stockpiled material. No evidence of contamination of any kind was observed by the GEOLOGICA field technician. A photograph of the stockpile is included in **Figure 1**.

4.2 Composite Sample Laboratory Chemical Testing

Laboratory analytical results and reporting levels are shown in **Table 1.** No TPH as gasoline/BTEX, TPH as diesel/motor oil, organochlorine pesticides, or PCBs were detected in any of the composite samples collected for this study. Total lead levels varied from 1.6 to 1.8 mg/kg in the two composite samples and the duplicate composite. The Curtis & Tompkins laboratory analytical report is included in **Appendix A**.

4.3 Data Quality Control Evaluation

The Curtis & Tompkins Level III laboratory analytical report was reviewed by DataVal Inc. of San Rafael, CA. DataVal concluded that all of the data were "usable as reported." The DataVal report is included as **Appendix B**.

The TPH-diesel and TPH-motor oil quantitation limits for the non-detect results in samples GA9SSCOMP501-504 and DUP073004COMP501-504 were each qualified as "an estimated value" due to surrogate recoveries outside the project acceptance criteria. This is likely due to matrix interferences. The data qualifications are noted in **Table 1**.

DataVal also noted that in some cases, reporting limits were raised above the project reporting limits due to the dry weight correction. In addition, the reporting limit for toxaphene was raised from 40 ug/kg to 61-62 ug/kg.

5.0 DISCUSSION

Table 1 includes available soil clean-up levels established for the Presidio in EKI (2002), *Cleanup Levels Document*. Analytical results are compared to the dune sand soil clean-up levels for human residential land use / protection of ecological receptors. None of the constituents tested, with the exception of total lead, were detected above their reporting levels. Even though the reporting levels have in some cases been slightly raised or qualified (as described in **Section 4.3**), all reporting levels are well below available soil cleanup criteria. (It should be noted that no Presidio clean-up criteria have been established for toxaphene and gamma-BHC.) Total lead levels detected (1.6 to 1.8 mg/kg) are well below the total lead cleanup level of 160 mg/kg. The total lead levels are almost certainly indicative of naturally-occurring background lead concentrations in the material.

6.0 CONCLUSIONS

Based on this limited composite sample testing program, no evidence was found to disconfirm available information regarding the unimpaired nature of the dune sand or indicate contamination that would render it inappropriate for its intended use. Assuming that the dune sand imported to the Presidio after July 30, 2004, i.e., the remainder of the 40,000 cu yds, is of similar origin and character, no further sampling or testing is recommended for this material.

Should you have any questions about this Letter Report, please do not hesitate to contact me at (415) 597-7883.

Sincerely,

GEOLOGICA INC.

Brian F. Aubry, R.G., C.E.G., C.Hg.
Principal

Attachments:

Table 1 – Summary of Chemical Test Results

Figure 1 – Discrete Sample Locations, GA-9 Dune Sand Stockpile, July 30, 2004

Appendix A – *Analytical Laboratory Report*, Curtis & Tompkins, August 10, 2004

Appendix B – *Quality Control Summary Report*, DataVal Inc., August 11, 2004

TABLES

TABLE 1

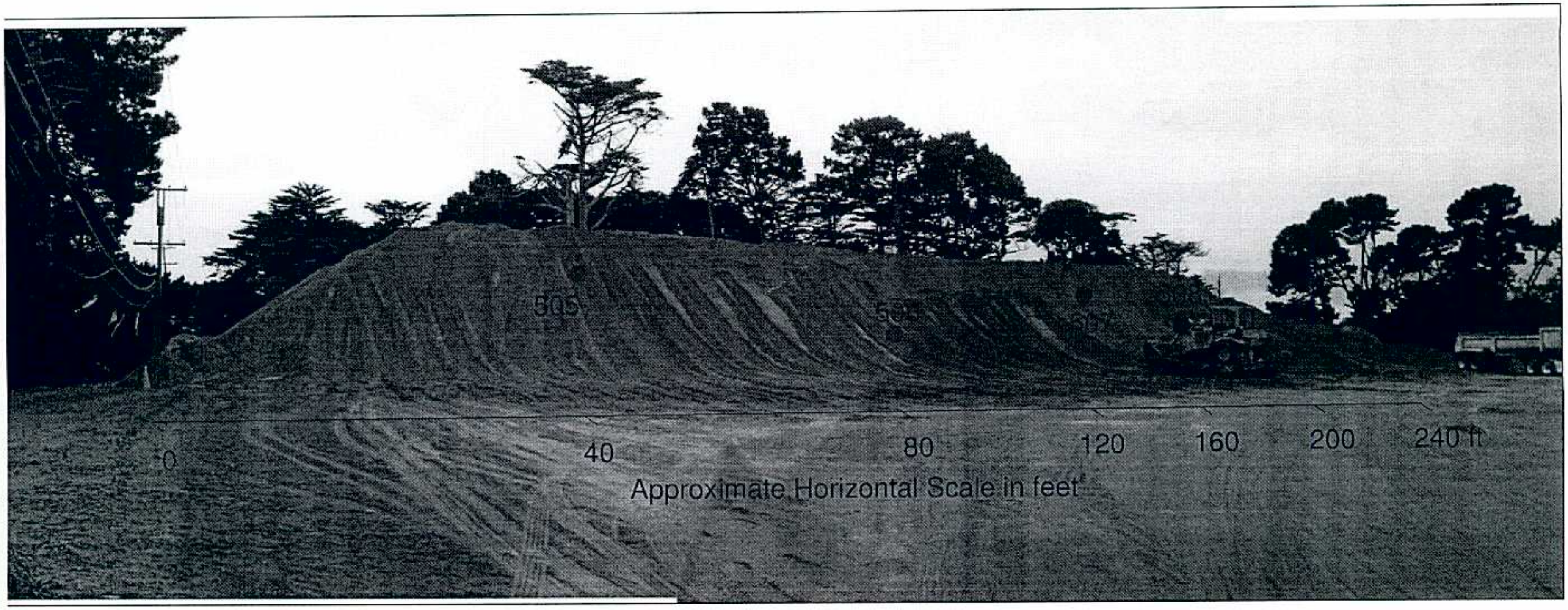
Summary of Chemical Test Results[1]
Dune Sand Stockpile Composite Samples
Area GA-9
Presidio of San Francisco
July 30, 2004

Method	Analyte	Units	Reporting Limit	GA9SS-COMP501-504	DUP073004-COMP501-504[2]	GA9SS-COMP505-508	Soil Cleanup Levels[3] Residential - Beach / Dune Ecological - Special Status
Date Sampled				7/30/2004	7/30/2004	7/30/2004	
Discrete Sample Depth (ft bgs)				6"	6"	6"	
	Petroleum Hydrocarbons						
EPA 8015B	Diesel Range Organics (C12-C24)[4]	mg/kg	1.0	<1.0[5]	<1.0[5]	<1.0	700 (115)[6]
EPA 8015B	Motor Oil Range Organics (C24-C36)	mg/kg	5.1	<5.1[5]	<5.1[5]	<5.1	980 (160)
EPA 8015B	Gasoline Range Organics (C7-C12)	mg/kg	0.97 - 1.0	<1.0	<0.97	<1.0	610 (100)
EPA 8021B	Benzene	ug/kg	4.9 - 5.1	<5.1	<4.9	<5.0	600
EPA 8021B	Toluene	ug/kg	4.9 - 5.1	<5.1	<4.9	<5.0	270,000
EPA 8021B	Ethylbenzene	ug/kg	4.9 - 5.1	<5.1	<4.9	<5.0	60,000
EPA 8021B	m, p-Xylenes	ug/kg	4.9 - 5.1	<5.1	<4.9	<5.0	55,000[7]
EPA 8021B	o-Xylene	ug/kg	4.9 - 5.1	<5.1	<4.9	<5.0	55,000[7]
	Organochlorine Pesticides						
EPA 8081A	alpha-BHC	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	62
EPA 8081A	beta-BHC	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	62
EPA 8081A	gamma-BHC	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	-
EPA 8081A	delta-BHC	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	62
EPA 8081A	Heptachlor	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	17
EPA 8081A	Aldrin	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	3.9
EPA 8081A	Heptachlor epoxide	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	17
EPA 8081A	Endosulfan I	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	1,100[8]
EPA 8081A	Dieldrin	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	30
EPA 8081A	4,4'-DDE	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	98
EPA 8081A	Endrin	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	4
EPA 8081A	Endosulfan II	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	1,100[8]
EPA 8081A	Endosulfan Sulfate	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	1,100
EPA 8081A	4, 4'-DDD	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	49
EPA 8081A	Endrin aldehyde	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	4
EPA 8081A	4, 4'-DDT	ug/kg	3.3 - 3.4	<3.3	<3.4	<3.4	8.2
EPA 8081A	alpha-Chlordane	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	9[9]
EPA 8081A	gamma-Chlordane	ug/kg	1.7 - 1.8	<1.7	<1.7	<1.8	9[9]
EPA 8081A	Methoxychlor	ug/kg	17 - 18	<17	<17	<18	440
EPA 8081A	Toxaphene	ug/kg	61 - 62	<61	<61	<62	-
	Polychlorinated Biphenyls (PCBs)						
EPA 8082	Aroclor-1016	ug/kg	12	<12	<12	<12	-
EPA 8082	Aroclor-1221	ug/kg	24 - 25	<24	<24	<25	-
EPA 8082	Aroclor-1232	ug/kg	12	<12	<12	<12	-
EPA 8082	Aroclor-1242	ug/kg	12	<12	<12	<12	-
EPA 8082	Aroclor-1248	ug/kg	12	<12	<12	<12	-
EPA 8082	Aroclor-1254	ug/kg	12	<12	<12	<12	33
EPA 8082	Aroclor-1260	ug/kg	12	<12	<12	<12	-
	Inorganics						
EPA 6020	Lead (total)	mg/kg	0.14 - 0.17	1.8	1.6	1.6	160

Notes:

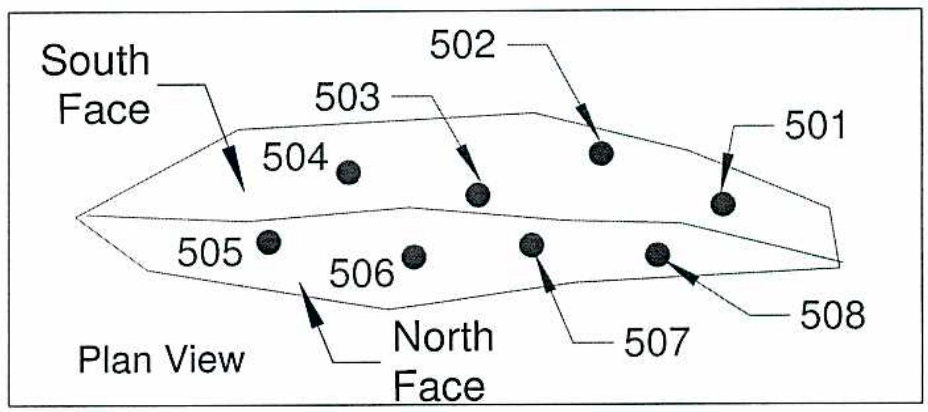
1. Compositing and analyses performed by Curtis &Tompkins, Ltd. of Berkeley, CA. All results referenced to dry weight.
2. Duplicate sample of GA9SS-COMP501-504
3. *Cleanup Levels Document* (EKI, 2002)
4. Silica Gel Cleanup procedures performed.
5. The non-detected results for TPH-diesel and TPH-motor oil were qualified as estimated (UJ) in these two samples by DataVal, Inc.
6. Value shown in parentheses applies if the depth to groundwater is less than 5 feet.
7. Value is for total xylenes.
8. Vaue is for chlordane.
9. Value is for endosulfan.

FIGURES



Typical View (Looking Southwest) of Soil Stockpile Showing North Face Sample Locations - 7/30/04

505 ● Approximate Location of Discrete Sample



geologica	Discrete Sample Locations GA-9 Dune Sand Stockpile July 30, 2004	**Presidio of San Francisco** **San Francisco, California**
594 Howard Street, Suite 400 San Francisco, California		**Figure 1**

APPENDIX A
Curtis & Thompkins Analytical Laboratories Report

Appendix A of this report was not available to insert in this "Draft" version

S&S Trucking Sample Results

TORRENT LABORATORY, INC.

483 Sinclair Frontage Rd. • Milpitas, CA 95035 • Ph: (408) 263-5258 • Fax: (408) 263-8293

www.torrentlab.com email: analysis@torrentlab.com

June 23, 2005

Sunil Shah
Peak Engineering, Inc
477 Roland Way
Oakland, CA 94621

TEL: (510) 553-1533
FAX (510) 553-0674

RE:

Order No.: 0506084

Dear Sunil Shah:

Torrent Laboratory, Inc. received 1 sample on 6/21/2005 for the analyses presented in the following report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc, is certified by the State of California, ELAP #1991. If you have any questions regarding these tests results, please feel free to contact the Project Management Team at (408)263-5258;ext: 204.

Sincerely,

Laboratory Director Date

TORRENT LABORATORY, INC.

483 Sinclair Frontage Rd. • Milpitas, CA 95035 • Ph: (408) 263-5258 • Fax: (408) 263-8293

www.torrentlab.com email: analysis@torrentlab.com

Torrent Laboratory, Inc. Date: *23-Jun-05*

CLIENT: Peak Engineering, Inc

Project:

Lab Order: 0506084

CASE NARRATIVE

Analytical Comments for 6010B_S,Note:The % recoveries in the MSD for Beryllium,Cadmium and Copper are outside of laboratory control limits but within % RPD limits and % recovery limits for the LCS/LCSD. No corrective action is required.

TORRENT LABORATORY, INC.

483 Sinclair Frontage Road • Milpitas, CA • Phone: (408) 263-5258 • Fax: (408) 263-8293
Visit us at www.torrentlab.com email: analysis@torrentlab.com

Report prepared for: Sunil Shah
Peak Engineering, Inc

Date Received: 6/21/2005
Date Reported: 6/23/2005

Client Sample ID: P25055
Sample Location: Goldengate Park
Sample Matrix: SOIL
Date/Time Sampled 6/21/2005

Lab Sample ID: 0506084-001
Date Prepared: 6/21/2005

Parameters	Analysis Method	Date Analyzed	RL	Dilution Factor	MRL	Result	Units	Analytical Batch
Antimony	SW6010B	6/22/2005	3	1	3.0	ND	mg/Kg	1452
Arsenic	SW6010B	6/22/2005	1.747	1	1.7	ND	mg/Kg	1452
Barium	SW6010B	6/22/2005	3	1	3.0	24	mg/Kg	1452
Beryllium	SW6010B	6/22/2005	2	1	2.0	ND	mg/Kg	1452
Cadmium	SW6010B	6/22/2005	0.5	1	0.50	ND	mg/Kg	1452
Chromium	SW6010B	6/22/2005	0.5	1	0.50	27	mg/Kg	1452
Cobalt	SW6010B	6/22/2005	0.5	1	0.50	5.0	mg/Kg	1452
Copper	SW6010B	6/22/2005	0.5	1	0.50	7.9	mg/Kg	1452
Lead	SW6010B	6/22/2005	0.368	1	0.37	22	mg/Kg	1452
Molybdenum	SW6010B	6/22/2005	0.5	1	0.50	ND	mg/Kg	1452
Nickel	SW6010B	6/22/2005	0.5	1	0.50	20	mg/Kg	1452
Selenium	SW6010B	6/22/2005	2	1	2.0	ND	mg/Kg	1452
Silver	SW6010B	6/22/2005	1	1	1.0	ND	mg/Kg	1452
Thallium	SW6010B	6/22/2005	5	1	5.0	ND	mg/Kg	1452
Vanadium	SW6010B	6/22/2005	2	1	2.0	27	mg/Kg	1452
Zinc	SW6010B	6/22/2005	4	1	4.0	24	mg/Kg	1452
Mercury	SW7471A	6/22/2005	0.1	1	0.10	0.42	mg/Kg	1447
TPH (Diesel)	SW8015B	6/22/2005	2	1	2.00	ND	mg/Kg	R6436
TPH (Oil)	SW8015B	6/22/2005	4	1	4.00	51.3	mg/Kg	R6436
Surr: Pentacosane	SW8015B	6/22/2005	0	1	53.5-127	78.8	%REC	R6436

These analyses were performed according to State of California Environmental Laboratory Accreditation program, Certificate # 1991

Torrent Laboratory, Inc.

Date: *23-Jun-05*

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B_S

Sample ID: 1452-MBLK	SampType: MBLK	TestCode: 6010B_S	Units: mg/Kg	Prep Date: 6/21/2005	RunNo: 6439
Client ID: ZZZZZ	Batch ID: 1452	TestNo: SW6010B	(SW3050B)	Analysis Date: 6/22/2005	SeqNo: 93328

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	3.0									
Arsenic	ND	1.7									
Barium	ND	3.0									
Beryllium	ND	2.0									
Cadmium	ND	0.50									
Chromium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	0.50									
Lead	ND	0.37									
Molybdenum	ND	0.50									
Nickel	ND	0.50									
Selenium	ND	2.0									
Silver	ND	1.0									
Thallium	ND	5.0									
Vanadium	ND	2.0									
Zinc	ND	4.0									

Sample ID: 1452-LCS	SampType: LCS	TestCode: 6010B_S	Units: mg/Kg	Prep Date: 6/21/2005	RunNo: 6439
Client ID: ZZZZZ	Batch ID: 1452	TestNo: SW6010B	(SW3050B)	Analysis Date: 6/22/2005	SeqNo: 93326

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	110.3	3.0	100	0	110	67.6	140				
Arsenic	120.4	1.7	100	0	120	73.9	135				
Barium	108.3	3.0	100	0	108	70.2	130				
Beryllium	111.3	2.0	100	0	111	89.4	113				
Cadmium	111.0	0.50	100	0	111	82.4	125				
Chromium	108.1	0.50	100	0	108	68.1	122				
Cobalt	107.3	0.50	100	0	107	73.7	120				
Copper	110.7	0.50	100	0	111	92.1	118				

Qualifiers:

B	Value above quantitation range	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B_S

Sample ID 1452-LCS | SampType: LCS | TestCode: 6010B_S | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6439
Client ID: ZZZZZ | Batch ID: 1452 | TestNo: SW6010B (SW3050B) | Analysis Date: 6/22/2005 | SeqNo: 93326

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	102.9	0.37	100	0	103	67.9	118				
Molybdenum	111.0	0.50	100	0	111	87.3	122				
Nickel	108.0	0.50	100	0	108	69.2	126				
Selenium	100.8	2.0	100	0	101	75	125				
Silver	89.41	1.0	100	0	89.4	65.4	118				
Thallium	108.1	5.0	100	0	108	75	125				
Vanadium	111.3	2.0	100	0	111	83.2	112				
Zinc	110.7	4.0	100	0	111	72.6	123				

Sample ID 1452-LCSD | SampType: LCSD | TestCode: 6010B_S | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6439
Client ID: ZZZZZ | Batch ID: 1452 | TestNo: SW6010B (SW3050B) | Analysis Date: 6/22/2005 | SeqNo: 93327

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	102.1	3.0	100	0	102	67.6	140	110.3	7.68	30	
Arsenic	114.9	1.7	100	0	115	73.9	135	120.4	4.66	30	
Barium	105.5	3.0	100	0	105	70.2	130	108.3	2.64	30	
Beryllium	105.7	2.0	100	0	106	89.4	113	111.3	5.17	30	
Cadmium	107.8	0.50	100	0	108	82.4	125	111	2.69	30	
Chromium	105.2	0.50	100	0	105	68.1	122	108.1	2.76	30	
Cobalt	103.7	0.50	100	0	104	73.7	120	107.3	3.41	30	
Copper	109.4	0.50	100	0	109	92.1	118	110.7	1.21	30	
Lead	100.4	0.37	100	0	100	67.9	118	102.9	2.44	30	
Molybdenum	108.7	0.50	100	0	109	87.3	122	111	2.09	30	
Nickel	104.1	0.50	100	0	104	69.2	126	108	3.74	30	
Selenium	103.1	2.0	100	0	103	75	125	100.8	2.19	30	
Silver	88.72	1.0	100	0	88.7	65.4	118	89.41	0.775	30	
Thallium	110.5	5.0	100	0	110	75	125	108.1	2.19	30	
Vanadium	107.3	2.0	100	0	107	83.2	112	111.3	3.70	30	
Zinc	105.1	4.0	100	0	105	72.8	123	110.7	5.19	30	

Qualifiers: E Value above quantitation range; H Holding times for preparation or analysis exceeded; J Analyte detected below quantitation limits; ND Not Detected at the Reporting Limit; R RPD outside accepted recovery limits; S Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B_S

Sample ID 0506084-001AMS | SampType: MS | TestCode: 6010B_S | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6439
Client ID: P25055 | Batch ID: 1452 | TestNo: SW6010B (SW3050B) | Analysis Date: 6/22/2005 | SeqNo: 93313

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	92.97	3.0	100	0	93.0	67.6	140				
Arsenic	112.7	1.7	100	0	113	73.9	135				
Barium	117.7	3.0	100	23.65	94.0	70.2	130				
Beryllium	94.74	2.0	100	0	94.7	69.4	113				
Cadmium	89.93	0.50	100	0	89.9	82.4	125				
Chromium	116.1	0.50	100	27.19	88.9	68.1	122				
Cobalt	94.16	0.50	100	4.951	89.2	73.7	120				
Copper	107.2	0.50	100	7.884	99.3	92.1	118				
Lead	106.5	0.37	100	21.76	84.7	67.9	118				
Molybdenum	108.9	0.50	100	0	109	87.3	122				
Nickel	114.9	0.50	100	20.21	94.7	69.2	126				
Selenium	96.70	2.0	100	0	96.7	65	135				
Silver	88.20	1.0	100	0	88.2	65.4	118				
Thallium	93.12	5.0	100	0	93.1	65	135				
Vanadium	123.5	2.0	100	26.66	96.8	83.2	112				
Zinc	118.6	4.0	100	23.98	94.6	72.6	123				

Sample ID 0506084-001AMSD | SampType: MSD | TestCode: 6010B_S | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6439
Client ID: P25055 | Batch ID: 1452 | TestNo: SW6010B (SW3050B) | Analysis Date: 6/22/2005 | SeqNo: 93314

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	78.47	3.0	100	0	78.5	67.6	140	92.97	16.9	30	
Arsenic	96.11	1.7	100	0	96.1	73.9	135	112.7	15.9	30	
Barium	104.3	3.0	100	23.65	80.7	70.2	130	117.7	12.1	30	
Beryllium	86.58	2.0	100	0	85.6	89.4	113	94.74	10.2	30	S
Cadmium	80.81	0.50	100	0	80.8	82.4	125	89.93	10.7	30	S
Chromium	103.3	0.50	100	27.19	76.1	68.1	122	116.1	11.7	30	
Cobalt	85.79	0.50	100	4.951	80.8	73.7	120	94.16	9.29	30	
Copper	96.03	0.50	100	7.884	88.2	92.1	118	107.2	11.0	30	S
Lead	95.84	0.37	100	21.76	74.1	67.9	118	106.5	10.5	30	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010B_S

Sample ID 0506084-001AMSD	SampType: MSD	TestCode: 6010B_S	Units: mg/Kg	Prep Date: 6/21/2005	RunNo: 6439
Client ID: P25055	Batch ID: 1452	TestNo: SW6010B	(SW3050B)	Analysis Date: 6/22/2005	SeqNo: 93314

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	102.1	0.50	100	0	102	87.3	122	108.9	6.46	30	
Nickel	98.58	0.50	100	20.21	78.4	69.2	126	114.9	16.3	30	
Selenium	83.84	2.0	100	0	83.8	65	135	96.7	14.2	30	
Silver	77.92	1.0	100	0	77.9	65.4	118	88.2	12.4	30	
Thallium	82.82	5.0	100	0	82.8	65	135	93.12	11.7	30	
Vanadium	111.0	2.0	100	26.66	84.3	83.2	112	123.5	10.7	30	
Zinc	105.7	4.0	100	23.98	81.8	72.6	123	118.6	11.5	30	

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: HG_CTS

Sample ID 1447-MBLK | SampType: MBLK | TestCode: HG_CTS | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6430
Client ID: ZZZZZ | Batch ID: 1447 | TestNo: SW7471A | (SW7471APR | Analysis Date: 6/22/2005 | SeqNo: 93185

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID 1447-LCS | SampType: LCS | TestCode: HG_CTS | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6430
Client ID: ZZZZZ | Batch ID: 1447 | TestNo: SW7471A | (SW7471APR | Analysis Date: 6/22/2005 | SeqNo: 93183

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.683	0.10	2.5	0	107	80	120				

Sample ID 1447-LCSD | SampType: LCSD | TestCode: HG_CTS | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6430
Client ID: ZZZZZ | Batch ID: 1447 | TestNo: SW7471A | (SW7471APR | Analysis Date: 6/22/2005 | SeqNo: 93184

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.817	0.10	2.5	0	113	80	120	2.683	4.85	30	

Sample ID 0506084-001AMS | SampType: MS | TestCode: HG_CTS | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6430
Client ID: P25055 | Batch ID: 1447 | TestNo: SW7471A | (SW7471APR | Analysis Date: 6/22/2005 | SeqNo: 93181

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.917	0.10	2.5	0.4167	100	70	130				

Sample ID 0506084-001AMSD | SampType: MSD | TestCode: HG_CTS | Units: mg/Kg | Prep Date: 6/21/2005 | RunNo: 6430
Client ID: P25055 | Batch ID: 1447 | TestNo: SW7471A | (SW7471APR | Analysis Date: 6/22/2005 | SeqNo: 93182

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	2.817	0.10	2.5	0.4167	96.0	70	130	2.917	3.49	30	

Qualifiers:
- E Value above quantitation range
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: TPH_D/MO_S_8015B

Sample ID SD050622A-MB RR | SampType: MBLK | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 6436
Client ID: ZZZZZ | Batch ID: R6436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93267

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	ND	2.00									
TPH (Oil)	ND	4.00									
Surr: Pentacosane	2.904	0	3.3	0	88.0	53.5	127				

Sample ID SD050622A-LCS | SampType: LCS | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 6436
Client ID: ZZZZZ | Batch ID: R6436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93268

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	25.23	2.00	33.33	1.309	71.8	46.2	109				
Surr: Pentacosane	2.608	0	3.3	0	79.0	53.5	127				

Sample ID SD050622A-LCSD | SampType: LCSD | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 6436
Client ID: ZZZZZ | Batch ID: R6436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93269

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	27.19	2.00	33.33	1.309	77.7	46.2	109	25.23	7.48	30	
Surr: Pentacosane	2.672	0	3.3	0	81.0	53.5	127	0	0	0	

Sample ID 0506084-001AMS | SampType: MS | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 6436
Client ID: P25055 | Batch ID: R6436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93274

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	27.01	2.00	33.33	1.817	75.6	46.2	109				
Surr: Pentacosane	3.000	0	3.3	0	90.9	53.5	127				

Sample ID 0506084-001AMSD | SampType: MSD | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 6436
Client ID: P25055 | Batch ID: R6436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93275

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel)	25.33	2.00	33.33	1.817	70.5	46.2	109	27.01	6.45	30	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

CLIENT: Peak Engineering, Inc
Work Order: 0506084
Project:

ANALYTICAL QC SUMMARY REPORT

TestCode: TPH_D/MO_S_8015B

Sample ID 0506084-001AMSD | SampType: MSD | TestCode: TPH_D/MO_S Units: mg/Kg | Prep Date: 6/22/2005 | RunNo: 8436
Client ID: P25055 | Batch ID: R8436 | TestNo: SW8015B | Analysis Date: 6/22/2005 | SeqNo: 93275

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Pentacosane	2.727	0	3.3	0	82.6	53.5	127	0	0	0	

Qualifiers:
E Value above quantitation range
ND Not Detected at the Reporting Limit
H Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
J Analyte detected below quantitation limits
S Spike Recovery outside accepted recovery limits

APPENDIX M

RESULTS OF POST-EXCAVATION GROUNDWATER MONITORING

DRAFT
FILL SITE 6
APPENDIX SECTION A-3
QUARTERLY GROUNDWATER MONITORING DATA TRANSMITTAL
FIRST QUARTER 2006
Presidio of San Francisco, California

1.0 SAMPLING SUMMARY

Monitoring wells LF6GW100, LF6GW101, LF6GW103 through LF6GW106 and 231GW09 were sampled, during the First Quarter 2006, as part of Fill Site 6 groundwater monitoring plan, in accordance with the proposed sampling plan (Table 1). Groundwater monitoring well locations are illustrated on Figure A-3-1.

During the First Quarter 2006, groundwater samples collected from monitoring wells LF6GW100, LF6GW101, and LF6GW103 were analyzed for general chemistry parameters, TOC, TDS, PAHs, total sulfide, OCPs, PCBs, TPHg, TPHd, and 23 dissolved metals. Groundwater samples collected from LF6GW104 and LF6GW106 were analyzed for general chemistry parameters, TOC, TDS, PAHs, total sulfide, TPHd, TPHfo, and 23 dissolved metals. Groundwater samples collected from Fill Site 6 monitoring well LF6GW105 were analyzed for general chemistry parameters, TOC, TDS, total sulfide, and 23 dissolved metals. Groundwater samples collected from 231GW09 were analyzed for general chemistry parameters, TOC, TDS, VOCs, total sulfide, TPHg, TPHd, TPHfo, and 23 dissolved metals as part of the Building 207/231 Area Sampling plan and to evaluate conditions downgradient of Fill Site 6A.

Additionally, dissolved oxygen, pH, temperature and ORP were measured within each well prior to sampling. The *Technical Memorandum, Evaluation of Arsenic and Other Metals in Groundwater at Three Corrective Action Plan Sites, Presidio of San Francisco, San Francisco, California* (MACTEC, June 2006), concluded that ORP is a good indicator for evaluating changing redox conditions. The First Quarter 2006 pH, temperature, and ORP data are presented in Table A-3-2 and will be used in the ongoing redox and arsenic concentration evaluations at CAP sites. Current and historical analytical results are presented in Tables A-3-1 through A-3-5.

The First Quarter 2006 groundwater elevation are presented on Figure A-3-2 and summarized in Table A-3-6. Groundwater elevations and flow directions observed during the First Quarter 2006 are similar to those previously observed at Fill Site 6.

Figure A-3-3 present First Quarter 2006 dissolved oxygen, nitrate as nitrogen manganese, iron, and sulfate data from each Fill Site 6 monitoring well sampled. The data is presented on redox diagrams, which help to visualize trends across the site.

2.0 ANALYTICAL RESULTS

Current and historical analytical results are presented in Tables A-3-1 through A-3-5. No TPH, PAHs, OCPs or PCBs were detected above laboratory limits during the First Quarter 2006 in any Fill Site 6 samples analyzed for these compounds. Monitoring wells LF6GW104 through LF6GW106 were only sampled for the second time during the First Quarter 2006 and therefore, new highs and low concentration trends are not discussed for these wells. Detected results are discussed below.

Dissolved oxygen ORP, pH, and temperature data are summarized in Table A-3-2.

2.1 General Chemistry Results

General chemistry parameters were analyzed for the second time within monitoring wells LF6GW100, LF6GW101 and LF6GW104 through LF6GW106 during the First Quarter 2006 and therefore, new highs and low concentrations trends can not evaluated due to an insufficient amount of data collected to date.

The majority of the general chemistry parameters measured during the First Quarter 2006 within LF6GW103 and 231GW09 are within historical ranges. The table below summarizes new high and low general chemistry parameters for the First Quarter 2006 within monitoring wells LF6GW103 and 231GW09 when compared to historical data, and provides the range and frequency of historical results (Table A-3-2). The total number of analyses may vary depending on the sampling frequency, the commencement date of sampling, and on the number of duplicate analyses performed.

Location	Analyte	Detects / Samples	Historical Data		New High/Low First Quarter 2006		Units
			Minimum	Maximum	Minimum	Maximum	
General Chemistry							
LF6GW103	Chloride	17 / 17	48.2	95	41	--	mg/L
	Nitrate	17 / 17	2.8	4.3	2.4	--	mg/L
	Sulfate	17 / 17	109	170	77	--	mg/L
231GW09	Chloride	25 / 25	42.4 *	75.1 *	22	--	mg/L
	Nitrate	25 / 25	5.5	45.6 *	4.6	--	mg/L
	Sulfate	25 / 25	65	92.8 *	35	--	mg/L

An asterisk (*) indicates qualified data in the above table.

All the detected concentrations of general chemistry parameters outside of historical bounds can be attributed to natural concentration fluctuations and are not considered to be significant. It should be noted that the chloride and sulfate concentrations detected within 231GW09 are significantly lower than previous detected concentrations within this well.

2.2 OCP Results

No OCPs or PCBs were detected in any Fill Site 6 monitoring well samples during the First Quarter 2006 as shown in Table A-3-2. Aldrin was detected in monitoring well LF6GW103 in the Third Quarter 2005 at a concentration of 0.05 µg/L which exceeded the Fill Site 6 RAP-specified cleanup level, therefore, OCP concentrations will continue to be evaluated during future annual events.

2.3 Dissolved Metals Results

Monitoring wells LF6GW100, LF6GW101, LF6GW103 through LF6GW106 and 231GW09 were sampled for dissolved metals during the First Quarter 2006.

The table below summarizes new high and low dissolved metal results for the First Quarter 2006 within monitoring wells associated with Fill Site 6 when compared to historical data, and provides the range and frequency of historical results (Table A-3-3). The total number of analyses may vary depending on the sampling frequency, the commencement date of sampling, and on the number of duplicate analyses performed.

Location	Analyte	Detects / Samples	Historical Data		New High/Low First Quarter 2006		Units
			Minimum	Maximum	Minimum	Maximum	
Metals, Dissolved							
LF6GW100	Magnesium	21 / 21	43,000	230,000	41,000 *	--	µg/L
	Sodium	21 / 21	28,000	120,000	27,000	--	µg/L
LF6GW101	Sodium	15 / 15	55,000	250,000	52,000	--	µg/L
	Total Dissolved Solids	15 / 15	400	560	--	600	mg/L
LF6GW103	Calcium	24 / 24	37,000	59,000 *	31,000	--	µg/L
	Chromium	27 / 27	27	37	26	--	µg/L
	Magnesium	25 / 25	57,000	270,000	49,000 *	--	µg/L
	Potassium	22 / 25	< 5,000 *	1,300	< 500 *	--	µg/L
	Sodium	25 / 25	65,000	300,000	59,000	--	µg/L
	Total Dissolved Solids	25 / 25	560	760	430	--	mg/L
231GW09	Barium	15 / 15	46	58	31	--	µg/L
	Calcium	16 / 16	22,000	60,200	15,000	--	µg/L
	Magnesium	16 / 16	39,000	60,700	24,000	--	µg/L
	Sodium	15 / 15	62,000	129,000	42,000	--	µg/L
	Total Dissolved Solids	25 / 25	420	790	320 *	--	mg/L

An asterisk (*) indicates qualified data in the above table.

New high or low concentrations were detected within Fill Site 6 samples during the First Quarter 2006 within LF6GW100, LF6GW101, LF6GW103 and 231GW09. The new low and high concentrations of dissolved metals are slightly higher or lower than historical concentrations and likely represent natural fluctuations. Additionally, the detected concentrations are not considered

significant since they do not exceed groundwater cleanup levels specified in the RAP and shown on Table A-3-3.

Table A-3-1
Results of TPH Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	TPH as Gasoline (Carbon Range C_7-C_{12})	TPH as Diesel (Carbon Range C_{12}-C_{24})	TPH as Fuel Oil (Carbon Range C_{24}-C_{36})
	Analytical Method[1]	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
		(µg/L)	(µg/L)	(µg/L)
Cleanup Levels [2]		**443**	**880**	**1,200**
LF6GW100	03/17/06	< 50	< 50	NA
	04/04/05	< 50	< 50	NA
	03/15/04	< 50	NA	NA
	12/05/03	< 50	< 50	NA
DUP1205033A	12/05/03	< 50	< 50	NA
LF6GW100CL	12/05/03	< 50	< 48 UJ	NA
	08/20/03	< 50	< 50	NA
	06/09/03	< 50	< 50	NA
	03/19/03	< 50	< 50	NA
	12/06/02	< 50	< 50	NA
	09/05/02	< 50	< 50	NA
DUP0905023A	09/05/02	< 50	< 50	NA
	06/05/02	< 50	< 50	NA
	03/12/02	< 50	< 50	NA
DUP0312022A	03/12/02	< 50	< 50	NA
LF6GW100CL	03/12/02	< 50	< 50 UJ	NA
	12/04/01	< 50	< 50	NA
DUP1204011A	12/04/01	< 50	< 50	NA
LF6GW100CL	12/04/01	< 50	< 50	NA
	08/29/01	< 50	60 [3] Y,NJ	NA
	05/17/01	< 50	< 50	NA
	07/19/00	< 50	< 50	NA
LF6GW101	03/17/06	< 50	< 50	NA
	04/04/05	< 50	< 50	NA
	03/15/04	< 50	NA	NA
	12/05/03	< 50	< 50	NA
	08/20/03	< 50	< 50	NA
	06/10/03	< 50	< 50	NA
	03/19/03	< 50	< 50	NA
	12/06/02	< 50	< 50	NA
	09/04/02	< 50	< 50	NA
	06/05/02	< 50	< 50	NA
DUP0605021A	06/05/02	< 50	< 50	NA
	03/13/02	< 50	< 50	NA
	12/04/01	< 50	< 50	NA
	08/29/01	< 50	< 50 [3]	NA
	05/17/01	< 50	< 50	NA
	07/19/00	< 50	< 50	NA
LF6GW102	04/04/05	< 50	< 50	NA
	12/16/04	< 50	< 50	NA
	08/12/04	< 50	< 50	NA
	05/26/04	< 50	< 50	NA
	03/17/04	< 50	< 50	NA
	12/08/03	< 50	< 50	NA
	08/18/03	< 50	< 50	NA
	06/04/03	< 50	< 50	NA
	03/18/03	< 50	< 50	NA
DUP0318031A	03/18/03	< 50	< 50	NA
LF6GW102CL	03/18/03	< 50	< 50	NA

Table A-3-1
Results of TPH Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	TPH as Gasoline (Carbon Range C_7-C_{12})	TPH as Diesel (Carbon Range C_{12}-C_{24})	TPH as Fuel Oil (Carbon Range C_{24}-C_{36})
	Analytical Method[1]	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
		(µg/L)	(µg/L)	(µg/L)
Cleanup Levels [2]		**443**	**880**	**1,200**
LF6GW102	12/11/02	< 50	< 50	NA
	09/05/02	< 50	< 50	NA
	06/06/02	< 50	< 50	NA
	03/13/02	< 50	< 50	NA
DUP0313021A	03/13/02	< 50	< 50	NA
	12/03/01	< 50	< 50	NA
DUP1203013A	12/03/01	< 50	< 50	NA
	09/07/01	< 50	57 [3] Y,NJ	NA
	05/18/01	< 50	< 50	NA
	07/19/00	< 50	< 50	NA
LF6GW103	03/17/06	< 50	< 50	NA
	11/30/05	< 50	< 50	NA
DUP1130053B	11/30/05	< 50	< 50	NA
LF6GW103CL	11/30/05	< 50 U	< 50 U	NA
	08/31/05	< 50	< 50	NA
	05/25/05	< 50	< 50	NA
	04/05/05	< 50	< 50	NA
DUP0405053A	04/05/05	< 50	< 50	NA
LF6GW103CL	04/05/05	< 50 U	< 50 U	NA
	12/16/04	< 50	< 50	NA
	08/12/04	< 50	< 50	NA
DUP0812042A	08/12/04	< 50	< 50	NA
	05/26/04	< 50	< 50	NA
	03/15/04	< 50	NA	NA
	12/09/03	< 50	< 50	NA
	08/14/03	< 50	< 50	NA
	06/10/03	< 50	< 50	NA
	03/19/03	< 50	< 50	NA
	12/06/02	< 50	< 50	NA
	09/05/02	< 50	< 50	NA
	06/05/02	< 50	< 50	NA
	03/13/02	< 50	< 50	NA
	12/04/01	< 50	< 50	NA
	08/29/01	< 50	< 50 [3]	NA
	05/17/01	< 50	< 50	NA
	07/19/00	< 50	< 50	NA
LF6GW104	03/17/06	NA	< 50	< 300
	12/07/05	NA	< 50	< 300
LF6GW106	03/20/06	NA	< 50	< 300
	12/07/05	NA	< 50	< 300
231GW09	03/15/06	< 50	< 50	< 300
	11/29/05	< 50	< 50	< 300
DUP1129052A	11/29/05	< 50	< 50	< 300
	08/31/05	< 50	< 50	< 300
	06/01/05	< 50	< 50	< 300
	04/04/05	< 50	< 50	< 300
	12/17/04	< 50	< 50	< 300
DUP1217042A	12/17/04	< 50	< 50	< 300
	08/12/04	< 50	< 50	< 300
	05/27/04	< 50	170 HY	< 300
DUP0527042C	05/27/04	< 50	< 50	< 300
231GW09CL	05/27/04	< 50	< 66	< 330
	03/18/04	< 50	< 50	< 300
	12/04/03	NA	NA	NA

Table A-3-1
Results of TPH Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	TPH as Gasoline (Carbon Range C_7-C_{12})	TPH as Diesel (Carbon Range C_{12}-C_{24})	TPH as Fuel Oil (Carbon Range C_{24}-C_{36})
	Analytical Method[1]	SW8015B/ SW8015M	SW8015B/ SW8015M	SW8015B/ SW8015M
		(µg/L)	(µg/L)	(µg/L)
Cleanup Levels [2]		**443**	**880**	**1,200**
231GW09	08/15/03	< 50	< 50	< 300
	06/10/03	NA	NA	NA

Notes
1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.
2 - From Table 3 of the RAP (Treadwell & Rollo, 2003c).
3 - TPH analysis was not run using the silica gel cleanup method 3630A, although it was marked on the chain of custody.
µg/L - micrograms per liter
NA - Not analyzed
TPH - Total petroleum hydrocarbons
H - Heavier hydrocarbons contributed to the quantitation.
Y - Sample exhibits a fuel pattern that does not resemble the standard
Z - Sample exhibits unknown single peak or peaks.
CL suffix denotes a quality control duplicate sample was sent to the control laboratory.
Table 7 in the main report identifies all duplicate and split samples and the well from which they were collected.
Table 11 in the main report identifies current and historical data qualifiers.
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

Table A-3-2
Results of General Chemistry, PAH, OCP, PCB, and Dissolved Oxygen Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	General Chemistry: Dissolved Oxygen	Alkalinity Total	Bicarbonate	Chloride	Fluoride	Nitrate as N	Nitrite as N	Sulfate	Sulfide	ORP	pH	Temperature	PAHs: Benzo(a)-Anthracene	Benzo(b)-Fluoranthene	Chrysene	Fluoranthene	All Other PAHs	OCPs and PCBs: Aldrin	Dieldrin	Endosulfan I	All Other OCPs and PCBs
	Analytical Method[1]	Field	E310.1	E310.1	E300.0	E300.0	E300.0	E300.0	E300.0	E300.0/ SW9056	Field	Field	Field	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A/ SW8082
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mV)	pH units	C°	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Cleanup Levels [2]		--	--	--	--	--	--	--	--	--	--	--	--	**0.0044**	**0.0044**	**0.0044**	**300**	--	**0.00013**	**0.00014**	**110**	--
LF6GW100	03/17/06	0.93	310	310	34	0.11	0.42	< 0.05	37	0.2 J-	205	6.95	12.7	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	04/04/05	5.5	250	250	30	0.12	0.37	< 0.05	33	< 0.04 UJ	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	03/15/04	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.2	< 0.1	< 0.4	ND	< 0.05	< 0.1	< 0.05	ND
	12/05/03	2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
DUP1205033A	12/05/03	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
LF6GW100CL	12/05/03	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.049	< 0.097	< 0.049	< 0.097	ND	< 0.049	< 0.098 UJ	< 0.049	ND
	08/20/03	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	06/09/03	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	03/19/03	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	0.1	< 0.05	ND
	12/06/02	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.049	< 0.098 UJ	< 0.049	ND
	09/05/02	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05 UJ	< 0.1	< 0.05 UJ	ND
DUP0905023A	09/05/02	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05 UJ	< 0.1	< 0.05 UJ	ND
	06/05/02	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	0.11	0.26	0.17	0.17 J	ND	< 0.047	< 0.094	< 0.047	ND
	03/12/02	0.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096	< 0.048 UJ	ND
DUP0312022A	03/12/02	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096	< 0.048 UJ	ND
LF6GW100CL	03/12/02	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.1	< 0.1	< 0.15	ND	< 0.05	0.073 J-	< 0.05	ND
	12/04/01	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.096 UJ	< 0.048	ND
DUP1204011A	12/04/01	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.096 UJ	0.058	ND
LF6GW100CL	12/04/01	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.1	< 0.1	< 0.15	ND	< 0.06	< 0.06	< 0.06	ND
	08/29/01	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.049	< 0.097 UJ	< 0.049	ND
	05/17/01	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09 UJ	< 0.19 UJ	< 0.09 UJ	< 0.38 UJ	ND	< 0.049	< 0.097 UJ	< 0.049	ND
	07/19/00	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 9.6	< 9.6	< 9.6	< 9.6	ND	< 0.094	< 0.094	< 0.094	ND
LF6GW101	03/17/06	4.15	420	420	44	< 0.1	0.64	< 0.05	50	< 0.04 R	-249.2	5.76	14.4	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	04/04/05	5.1	320	320	43	< 0.1	0.59	< 0.05	48	< 0.04 UJ	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1 UJ	< 0.05	ND
	03/15/04	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.05	< 0.1 UJ	< 0.05	ND
	12/05/03	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	08/20/03	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	06/10/03	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	03/19/03	5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09	< 0.05	ND
	12/06/02	5.3	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.049 UJ	< 0.098 UJ	< 0.049 UJ	ND
	09/04/02	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	06/05/02	0.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
DUP0605021A	06/05/02	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	03/13/02	4.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096	< 0.048 UJ	ND
	12/04/01	0.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.096 UJ	< 0.048	ND
	08/29/01	4.1	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.2	< 0.1	< 0.41	ND	< 0.049 UJ	< 0.097 UJ	< 0.049 UJ	ND
	05/17/01	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09 UJ	< 0.19 UJ	< 0.09 UJ	< 0.38 UJ	ND	< 0.049	< 0.097 UJ	< 0.049	ND
	07/19/00	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 9.5	< 9.5	< 9.5	< 9.5	ND	< 0.094	< 0.094	< 0.094	ND
LF6GW102	04/04/05	0.1	1,000	1,000	57	0.23	< 0.05	< 0.05	120	< 0.04 UJ	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05 UJ	< 0.1 UJ	< 0.05 UJ	ND
	12/16/04	0.6	740	740	33	0.15	< 0.05	< 0.05	3	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	08/12/04	0.29	660	660	30	0.15	0.05	< 0.05	6.3	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09	< 0.05	ND
	05/26/04	0.52	580	580	31	0.14	< 0.05	< 0.05	11	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05 UJ	< 0.09	< 0.05 UJ	ND
	03/17/04	0.18	930	930	45	NA	< 0.05	< 0.05	68	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1 UJ	< 0.05	ND
	12/08/03	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09	< 0.05	ND
	08/18/03	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.2	< 0.1	< 0.39	ND	< 0.05	< 0.09	< 0.05	ND
	06/04/03	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1 U	< 0.38	ND	< 0.05	< 0.1 UJ	< 0.05	ND

Table A-3-2
Results of General Chemistry, PAH, OCP, PCB, and Dissolved Oxygen Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	Dissolved Oxygen	Alkalinity Total	Bicarbonate	Chloride	Fluoride	Nitrate as N	Nitrite as N	Sulfate	Sulfide	ORP	pH	Temperature	Benzo(a)-Anthracene	Benzo(b)-Fluoranthene	Chrysene	Fluoranthene	All Other PAHs	Aldrin	Dieldrin	Endosulfan I	All Other OCPs and PCBs
		General Chemistry												PAHs					OCPs and PCBs			
	Analytical Method[1]	Field	E310.1	E310.1	E300.0	E300.0	E300.0	E300.0	E300.0	E300.0/ SW9056	Field	Field	Field	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A/ SW8082
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mV)	pH units	C°	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Cleanup Levels[2]		--	--	--	--	--	--	--	--	--	--	--	--	**0.0044**	**0.0044**	**0.0044**	**300**	--	**0.00013**	**0.00014**	**110**	--
LF6GW102	03/18/03	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05 UJ	< 0.1	< 0.05 UJ	ND
DUP0318031A	03/18/03	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09	< 0.05	ND
LF6GW102CL	03/18/03	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.05	< 0.1	< 0.05	< 0.1	ND	< 0.05 UJ	< 0.098 UJ	< 0.049	ND
	12/11/02	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	09/05/02	1	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	06/06/02	0.6	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	03/13/02	1.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096	< 0.048 UJ	ND
DUP0313021A	03/13/02	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096 UJ	< 0.048 UJ	ND
	12/03/01	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.095 UJ	< 0.048	ND
DUP1203013A	12/03/01	--	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.095 UJ	< 0.048	ND
	09/07/01	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.2	< 0.1	< 0.4	ND	< 0.048	< 0.096 UJ	< 0.048	ND
	05/18/01	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.17 UJ	< 0.33 UJ	< 0.17 UJ	< 0.67 UJ	ND	< 0.063	< 0.13 UJ	< 0.063	ND
	07/19/00	2.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 9.6	< 9.6	< 9.6	< 9.6	ND	< 0.094	< 0.094	< 0.094	ND
LF6GW103	03/17/06	0.84	320	320	41	< 0.1	2.4	< 0.05	77	< 0.04 R	10.5	6.94	14.4	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	11/30/05	3.1	370 J+	370	49	< 0.1	2.9	< 0.05	110	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.05	< 0.1 UJ	< 0.05	ND
DUP1130053B	11/30/05	--	350 J+	350	49	< 0.1	2.9	< 0.05	110	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.05	< 0.1 UJ	< 0.05	ND
LF6GW103CL	11/30/05	--	321	321	48.2	< 1 U	2.98	< 0.1 U	109	NA	NR	NR	NR	NA	NA	NA	NA	ND	< 0.05 U	< 0.1 U UJ	< 0.05 U	ND
	08/31/05	0.5	330	330	52	< 0.1	2.8	< 0.05	150	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	**0.05 b**	< 0.1	< 0.05	ND
	05/25/05	0.9	330	330	52	< 0.1	2.8	< 0.05	150	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.05	< 0.1	< 0.05	ND
	04/05/05	2.7	320	320	52	< 0.1	3	< 0.05	140	< 0.04	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1 UJ	< 0.05	ND
DUP0405053A	04/05/05	--	350	350	52	< 0.1	3.1	< 0.05	140	< 0.04	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1 UJ	< 0.05	ND
LF6GW103CL	04/05/05	--	326	326	51	< 0.3 U	3.17	< 0.02 U	147	0.053	NR	NR	NR	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	ND	< 0.05	< 0.1 U	< 0.05 U	ND
	12/16/04	0.7	330	330	71	< 0.1	3.8	< 0.05	150	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	08/12/04	0.33	270	270	78	< 0.1	3.8	< 0.05	130	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.1	< 0.05 UJ	ND
DUP0812042A	08/12/04	--	320	320	77	< 0.1	3.8	< 0.05	130	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05 UJ	< 0.09	< 0.05	ND
	05/26/04	0.69	300	300	84	< 0.1	3.6	< 0.05	150	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05 UJ	< 0.09	< 0.05 UJ	ND
	03/15/04	2.1	320	320	88	< 0.1	3.9	< 0.05	160	NA	NR	NR	NR	< 0.1	< 0.2	< 0.1	< 0.39	ND	< 0.05	< 0.1	< 0.05	ND
	12/09/03	2.7	330	330.0	95	< 0.1	4.3	< 0.05	160	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	08/14/03	3.3	320	320	71	< 0.1	3.8 b,J-	< 0.05 UJ	170	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.1	< 0.05	ND
	06/10/03	2.8	320	320	64	< 0.1	4.3	< 0.05	170	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.05	< 0.09 UJ	< 0.05	ND
	03/19/03	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05	< 0.09	< 0.05	ND
	12/06/02	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	< 0.049	< 0.098	< 0.049	ND
	09/05/02	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.05 UJ	< 0.099	< 0.05 UJ	ND
	06/05/02	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094	< 0.047 UJ	ND
	03/13/02	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048 UJ	< 0.096	< 0.048 UJ	ND
	12/04/01	1.0	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	< 0.048	< 0.096 UJ	< 0.048	ND
	08/29/01	3.0	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09	< 0.19	< 0.09	< 0.38	ND	< 0.047 UJ	< 0.094 UJ	< 0.047 UJ	ND
	05/17/01	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 0.09 UJ	< 0.19 UJ	< 0.09 UJ	< 0.38 UJ	ND	< 0.048	< 0.096 UJ	< 0.048	ND
	07/19/00	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	< 9.7	< 9.7	< 9.7	< 9.7	ND	< 0.094	< 0.094	< 0.094	ND
LF6GW104	03/17/06	2.41	260	260	33	< 0.1	6.9	< 0.05	270	< 0.04 R	240	5.75	15.8	< 0.1	< 0.19	< 0.1	< 0.38	ND	NA	NA	NA	NA
	12/07/05	0.7	330	330	82	< 0.1	20	< 0.05	190	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.38	ND	NA	NA	NA	NA
LF6GW105	03/20/06	0.52	310	310	95	< 0.1	4.6	< 0.05	110	< 0.04 R	171.1	6.83	16	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/07/05	0.9	310	310	110	< 0.1	5.3	< 0.05	120	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
LF6GW106	03/20/06	3.53	340	340	90	< 0.1	4.4	< 0.05	150	< 0.04 R	252	6.95	15.2	< 0.1	< 0.19	< 0.19	< 0.97	ND	NA	NA	NA	NA
	12/07/05	0.7	250	250	80	< 0.1	3.3	< 0.05	89	NA	NR	NR	NR	< 0.1	< 0.19	< 0.1	< 0.39	ND	NA	NA	NA	NA
231GW09	03/15/06	2.41	110	110	22	< 0.1	4.6	< 0.05	35	< 0.04	204	6.22	16.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/29/05	0.3	220 J+	220	48	< 0.1	6.6	< 0.05	75	< 0.04	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP1129052A	11/29/05	--	210 J+	210	48	< 0.1	6.7	< 0.05	76	< 0.04	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/31/05	0.7	220	220	48	< 0.1	5.5	< 0.05	75	< 0.04	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/01/05	1.9	210	210	48	0.11	5.5	< 0.05	77	0.04	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/05	2.1	180	180	51	< 0.1	5.5	< 0.05	79	0.11 J-	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/17/04	0.9	120	120	52	< 0.1	5.8	< 0.05	81	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP1217042A	12/17/04	--	190	190	51	< 0.1	5.6	< 0.05	79	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/12/04	0.82	250	250	50	< 0.1	5.8	< 0.05	77	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/27/04	0.49	310	310	51	< 0.1	6	< 0.05	81	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUP0527042C	05/27/04	NA	250	250	51	< 0.1	5.7	< 0.05	80	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
231GW09CL	05/27/04	NA	210	210	52 D	0.11	7.1 D	< 0.05	83 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/18/04	0.7	210	210	56	< 0.1	6.5	< 0.05	85	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/03	1.6	220	220	53	< 0.1	6.9	< 0.05	81	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/15/03	1.7	190	190	51	< 0.1	7.7 b,J-	< 0.05 UJ	91	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-3-2
Results of General Chemistry, PAH, OCP, PCB, and Dissolved Oxygen Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	General Chemistry												PAHs					OCPs and PCBs			
		Dissolved Oxygen	**Alkalinity Total**	**Bicarbonate**	**Chloride**	**Fluoride**	**Nitrate as N**	**Nitrite as N**	**Sulfate**	**Sulfide**	**ORP**	**pH**	**Temperature**	**Benzo(a)-Anthracene**	**Benzo(b)-Fluoranthene**	**Chrysene**	**Fluoranthene**	**All Other PAHs**	**Aldrin**	**Dieldrin**	**Endosulfan I**	**All Other OCPs and PCBs**
	Analytical Method[1]	Field	E310.1	E310.1	E300.0	E300.0	E300.0	E300.0	E300.0	E300.0/ SW9056	Field	Field	Field	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8270/ SW8310	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A	SW8081/ SW8081A/ SW8082
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mV)	pH units	C°	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Cleanup Levels [2]		--	--	--	--	--	--	--	--	--	--	--	--	**0.0044**	**0.0044**	**0.0044**	**300**	--	**0.00013**	**0.00014**	**110**	--
231GW09	06/10/03	2.1	250	250	57	< 0.1	9.1	< 0.05	88	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/17/03	5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/02	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/30/02	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/30/02	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/07/02	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/29/01	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/30/01	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/09/01	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/99	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/13/99	4.23	183	183	55.8	NA	33.6	NA	69	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/98	4.73	181	181	49	NA	28.2	NA	65	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/15/98	6.62	210	210	49.9 D	NA	32.2 D	NA	68.6 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/20/98	4.05	250	250	75.1 D	NA	45.6 D	NA	92.8 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/28/98	3.47	190	190	62.4 D	NA	22.3 D	NA	73.8 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/23/97	2.08	< 165	< 165	47.5 D	NA	24.5 D	NA	67.4 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/24/97	3.72	172	172	42.4 D	NA	29.1 D	NA	75.9 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/22/97	3.96	195	195	49.8 D	NA	29.8 D	NA	69.2 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/28/97	1.39	197	197	53.9 D	NA	22.5 D	NA	67 D	NA	NR	NR	NR	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes
1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.
2 - From Table 3 of the RAP (Treadwell & Rollo, 2003c). RAP cleanup levels only apply to wells LF6GW103, LF6GW104, LF6GW105, and 231GW09.
µg/L - micrograms per liter
mg/L - milligrams per liter
C° - degrees centigrade
mV - millivolts
ND - Not detected
NR - Not reported
OCPs - Organochlorine pesticides
ORP - Oxidation-reduction potential
PAHs - Polycyclic aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
Table 7 in the main report identifies all duplicate and split samples and the well from which they were collected.
Table 11 in the main report identifies current and historical data qualifiers.
Bold - indicates value above cleanup levels (see note 2 above).
-- Cleanup level not established
NA - Not analyzed
CL suffix denotes a quality control duplicate sample was sent to the control laboratory.
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

Table A-3-3
Results of Dissolved Metals Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	Aluminum	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Dissolved Solids
	Analytical Method[1]	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	1632M	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW7470/ SW7470A	SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	E160.1
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)
Cleanup Levels[2]		**--**	**6**	**10**	**10**	**1,000**	**4**	**1.1**	**--**	**50**	**--**	**11.8**	**--**	**3.2**	**--**	**--**	**0.012**	**100**	**--**	**5**	**4.1**	**--**	**1.7**	**--**	**106**	**--**
LF6GW100	03/17/06	< 100	< 1	< 5	NA	18	< 2	< 1	31,000	< 10	< 10	1.3	< 100	< 3	41,000 J	< 10	< 0.2	< 20	810 J-	< 5	< 1	27,000	< 1	< 10	< 20	350
	04/04/05	< 100	< 1	< 5	0.792	16	< 2	< 1	31,000	< 10	< 10	1.5	130	< 3	43,000	< 10	< 0.2	< 20	660	< 5	< 1	32,000	**5**	< 10	< 20	330
	03/15/04	< 100	< 1	< 5	NA	21	< 2	< 1	39,000	< 10	< 10	2.3	< 100	< 3	55,000	< 10	< 0.2	< 20	710	< 5	< 1	37,000	< 1	14	< 20	510
	12/05/03	< 100	2.3	< 5	NA	18	< 2	< 1	29,000	< 10	< 10	1.1	100	< 3	50,000	< 10	< 0.2	< 20	570	< 5	< 1	30,000	< 1	11	< 20	450
DUP1205033A	12/05/03	< 100	< 1	< 5	NA	17	< 2	< 1	30,000	< 10	< 10	< 1	110	< 3	51,000	< 10	< 0.2	< 20	560	< 5	< 1	31,000	< 1	11	< 20	430
LF6GW100CL	12/05/03	< 1,000	< 5	5.9	NA	15	< 1	< 1	37,000	< 10	< 7	< 10	< 500	< 3	50,000	< 5	< 0.2	< 10	< 1,200	< 5	< 1	32,000	< 2	11	< 20	380
	08/20/03	< 100	< 1	< 5	NA	17	< 2	< 1	35,000	< 10	< 10	2.1	390	< 3	51,000	< 10	< 0.2	< 20	510	< 5	< 1 UJ	30,000	< 1	11	< 20 UJ	480
	06/09/03	< 100	1.2	< 5	NA	15	< 2	< 1	37,000	< 10	< 10	1.1	< 100	< 3	52,000	< 10	< 0.2	< 20	< 500	< 5	< 1	29,000	< 1	11	< 20	460
	03/19/03	< 100 UJ	< 1	< 1	NA	12	< 1	< 1	42,000 J	5.2 J	< 1	1.2	< 100	< 3	64,000 J	< 10 UJ	< 0.2	6	560	< 5	< 1 UJ	39,000 J	< 1	< 10	< 10	490
	12/06/02	< 100	< 1	< 1	NA	14	< 1	< 1	34,000	8.9	< 1	1.2	110	< 3	49,000	< 10 UJ	< 0.2	6.6	580	< 5	< 1 UJ	28,000	< 1	11	< 10	270
	09/05/02	< 100	1	1	NA	410	< 1	< 1	36,000	8.3	< 1	1.4	< 100	< 3	52,000	< 10	< 0.2	6.3	750	< 5	< 1 UJ	32,000	< 1	11	**200**	430 J-
DUP0905023A	09/05/02	< 100	< 1	< 1	NA	250	< 1	< 1	35,000	8	< 1	1.3	< 100	< 3	52,000	< 10	< 0.2	6.1	670	< 5	< 1 UJ	31,000	< 1	11	65	400 J-
	06/05/02	< 100	< 1	1.2	NA	520	< 1	< 1	37,000	6.7	< 1	1.7	120	< 3	55,000	< 10	< 0.2	6.1	830	< 5	< 1	34,000	< 1	< 10	**220**	350
	03/12/02	< 100	< 1	1.2	NA	450	< 1	< 1	37,000	4.2	< 1	1.7	< 100	< 3	57,000	< 10	< 0.2	6.2	720	< 5	< 1 UJ	37,000	< 1	< 10	**170**	400
DUP0312022A	03/12/02	< 100	< 1	1.2	NA	240	< 1	< 1	35,000	4.5	< 1	1.7	< 100	< 3	55,000	< 10	< 0.2	6.4	730	< 5	< 1 UJ	36,000	< 1	< 10	48	390
LF6GW100CL	03/12/02	< 200	2.2	< 2	NA	490	< 2	< 1	32,000	3.2	0.2 J	2.3 B	< 200	< 5	46,000	< 5	NA	6.3	< 1,000	< 5	< 1	36,000	< 5	9.3	**170**	580 J-
	12/04/01	< 100	< 1	1.2	NA	290	< 1	< 1	47,000	9.4 J	< 1	2.8	< 100	< 3	71,000	< 10	< 0.2	9 J	1,400	< 5	< 1	40,000	< 1	< 10	71	510
DUP1204011A	12/04/01	< 100	< 1	1.4	NA	150	< 1	< 1	50,000	9.5 J	< 1	2.7	< 100	< 3	74,000	< 10	< 0.2	8.9 J	1,400	< 5	< 1	42,000	< 1	< 10	41	500
LF6GW100CL	12/04/01	< 200	1.1 J	1.9 BJ	NA	540	< 1	< 1	44,000	9.1 B	1.3	< 5	< 200	< 5	63,000	< 5	< 0.2	9.3	1,100	< 5	< 1	41,000	< 1	8.6	**160**	530
	08/29/01	110	1.9	1.7	NA	770 J+	< 1	< 1	39,000	6.2	< 1	2.2	310	< 3	62,000	< 10	< 0.2	7.3	< 500	< 5	< 1 UJ	37,000	< 1	< 10	**330**	450
	05/17/01	< 2,000	< 20	1.4	NA	40	< 20	< 20	< 500 R	7.2 J	< 20	1.3	360	< 60	230,000	13	< 0.2	7	820 J	< 5	< 20	120,000	< 20	11	20	430
	07/19/00	NA	< 60	< 5	NA	< 10	< 2	< 5	NA	< 10	< 20	< 10	NA	< 3	NA	NA	< 0.2	< 20	NA	< 5	< 5	NA	< 5	< 10	< 20	NA
LF6GW101	03/17/06	< 100	< 1	< 5	NA	28	< 2	< 1	39,000	17	< 10	< 1	< 100	< 3	57,000 J	< 10	< 0.2	< 20	< 500 UJ	< 5	< 1	52,000	< 1	11	< 20	600
	04/04/05	< 100	< 1	< 5	1.22	26	< 2	< 1	37,000	20	< 10	< 1	< 100	< 3	54,000	< 10	< 0.2	< 20	< 500	< 5	< 1	65,000	< 1	10	< 20	460
	03/15/04	< 100	< 1	< 5	NA	20	< 2	< 1	33,000	21	< 10	< 1	< 100	< 3	49,000	< 10	< 0.2	< 20	620	< 5	< 1	62,000	< 1	15	< 20	530
	12/05/03	< 100	2.4	< 5	NA	17	< 2	< 1	34,000	18	< 10	< 1	< 100	< 3	51,000	< 10	< 0.2	< 20	690	< 5	< 1	62,000	< 1	11	< 20	500
	08/20/03	< 100	1.6	< 5	NA	12	< 2	< 1	31,000	17	< 10	< 1	250	< 3	44,000	< 10	< 0.2	< 20	580	< 5	< 1 UJ	62,000	< 1	11	< 20 UJ	540
	06/10/03	< 100	< 1	< 5	NA	14	< 2	< 1	31,000	18	< 10	< 1	< 100	< 3	43,000	< 10	< 0.2	< 20	570	< 5	< 1	61,000	< 1	11	< 20	490
	03/19/03	< 100 UJ	< 1	1.3	NA	12	< 1	< 1	39,000 J	18 J	< 1	< 1	< 100	< 3	58,000 J	< 10 UJ	< 0.2	3.2	630	< 5	< 1 UJ	80,000 J	< 1	11	< 10	440
	12/06/02	< 100	< 1	1.5	NA	< 10	< 1	< 1	29,000	16	< 1	1	< 100	< 3	40,000	< 10 UJ	< 0.2	3	760	< 5	< 1 UJ	55,000	< 1	12	< 10	400
	09/04/02	< 100	2	1.6	NA	580	< 1	< 1	32,000	15 J	< 1	1.2	< 100	< 3	44,000	< 10	< 0.2	3.1	1,100	< 5	< 1 UJ	64,000	< 1	11	**250**	410
	06/05/02	< 100	< 1	1.8	NA	300	< 1	< 1	30,000	22	< 1	1.1	110	< 3	41,000	< 10	< 0.2	2.6	940	< 5	< 1	65,000	< 1	12	73	560
DUP0605021A	06/05/02	< 100	< 1	1.8	NA	520	< 1	< 1	30,000	21	< 1	< 1	100	< 3	40,000	< 10	< 0.2	2.5	970	< 5	< 1	66,000	< 1	12	**210**	450
	03/13/02	< 100	< 1	2.2	NA	390	< 1	< 1	31,000	20	< 1	< 1	< 100	< 3	39,000	< 10	< 0.2	2.2	1,100	< 5	< 1 UJ	61,000	< 1	10	**140**	400
	12/04/01	< 100	1.8	2.1	NA	570	< 1	< 1	37,000	23 J	< 1	2.1	< 100	< 3	43,000	< 10	< 0.2	3.9	1,400	< 5	< 1	75,000	< 1	13	**200**	500
	08/29/01	< 100	1.1	3	NA	45 J+	< 1	< 1	36,000	20	< 1	2.3	130	< 3	42,000	< 10	< 0.2	2.7	1,300	< 5	< 1 UJ	67,000	< 1	12	36	430
	05/17/01	< 2,000	< 20	2.6	NA	36	< 20	< 20	< 500 R	20 J	< 20	< 20	240	< 60	150,000	< 200	< 0.2	2.4	1,900 J	< 5	< 20	250,000	< 20	11	17	460
	07/19/00	NA	< 60	< 5	NA	15	< 2	< 5	NA	12	< 20	< 10	NA	< 3	NA	NA	< 0.2	< 20	NA	< 5	< 5	NA	< 5	< 10	< 20	NA
LF6GW102	04/04/05	< 100	< 1	< 5	NA	330	< 2	< 1	150,000	< 10	< 10	< 1	12,000	< 3	120,000	8,300	< 0.2	< 20	2,600	< 5	< 1	110,000	< 1	< 10	< 20	1,190
	12/16/04	< 100	< 1	< 5	NA	270	< 2	< 1	98,000	< 10	< 10	< 1	18,000	< 3	88,000	7,200	< 0.2	< 20	3,300	< 5	< 1	63,000	**2.7**	< 10	< 20	740
	08/12/04	< 100	< 1	< 5	NA	300	< 2	< 1	98,000	< 10	< 10	< 1	21,000	< 3	84,000	8,200	< 0.2	< 20	3,100	< 5	< 1	62,000	< 1	< 10	< 20	690
	05/26/04	< 100	< 1	< 5	NA	< 500	< 2	< 1	82,000	< 10	< 10	< 1	15,000	< 3	84,000	6,500	< 0.2	< 20	2,800	< 5	< 1	54,000	< 1	< 10	< 20	610
	03/17/04	< 100	< 1	< 5	NA	360	< 2	< 1	160,000	< 10	< 10	< 1	13,000	< 3	120,000	8,000	< 0.2	< 20	2,700	< 5	< 1 UJ	110,000	< 1	< 10	< 20	1,100
	12/08/03	< 100	1.2	< 5	NA	190	< 2	< 1	67,000	< 10	< 10	< 1	13,000	< 3	73,000	4,600	< 0.2	< 20	1,900	< 5	< 1 UJ	46,000	< 1	< 10	< 20	450

Table A-3-3
Results of Dissolved Metals Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	Aluminum	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Dissolved Solids
	Analytical Method[1]	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	1632M	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW7470/ SW7470A	SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	E160.1
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)
Cleanup Levels [2]		**--**	**6**	**10**	**10**	**1,000**	**4**	**1.1**	**--**	**50**	**--**	**11.8**	**--**	**3.2**	**--**	**--**	**0.012**	**100**	**--**	**5**	**4.1**	**--**	**1.7**	**--**	**106**	**--**
LF6GW102	08/18/03	< 100	< 1	< 5	0.851 J	200	< 2	< 1	66,000	< 10	< 10	< 1	11,000	< 3	74,000	4,500	< 0.2	< 20	1,800	< 5	< 1 UJ	48,000	< 1	< 10	< 20 UJ	560
	06/04/03	< 100	< 1	< 5	NA	170	< 2	< 1	58,000	< 10	< 10	< 1	9,800	< 3	69,000	3,900	< 0.2	< 20	1,700	< 5	< 1 UJ	43,000	< 1	< 10	< 20	560
	03/18/03	< 100 UJ	1.2	3.4	NA	300	1.1	1	110,000 J	4.5 J	1.1	1.2	12,000	< 3	110,000 J	5,800 J	< 0.2	3.7	2,500	< 5	< 1 UJ	86,000 J	< 1	< 10	< 10	690
DUP0318031A	03/18/03	< 100 UJ	< 1	2.7	NA	290	< 1	< 1	110,000 J	4.4 J	< 1	< 1	12,000	< 3	110,000 J	5,600 J	< 0.2	2.9	2,400	< 5	< 1 UJ	75,000 J	< 1	< 10	< 10	680
LF6GW102CL	03/18/03	< 100	< 5	< 2	NA	240	< 1	< 1	83,000	< 5	< 1	< 5	14,000	< 3	81,000	5,900	< 0.2 UJ	< 5	2,200	< 5	< 1	63,000	< 2	< 10	< 10	720
	12/11/02	< 100	< 1	2.9	NA	240 J+	< 1	< 1	81,000 J	< 1	< 1	< 1	14,000	< 3	81,000 J	6,300	< 0.2	2.7	2,500 J	< 5	< 1 UJ	53,000 J	< 1	< 10	< 10	620
	09/05/02	< 100	< 1	3.3	NA	540	< 1	< 1	82,000	5.4	< 1	< 1	16,000	< 3	81,000	6,300	< 0.2	2.5	2,500	< 5	< 1 UJ	59,000	< 1	< 10	52	670 J-
	06/06/02	< 100	< 1	3.1	NA	520	< 1	< 1	99,000	4.1	< 1	< 1	14,000	< 3	76,000	5,800	< 0.2	1.9	2,500	< 5	< 1	58,000	< 1	< 10	61	680
	03/13/02	< 100	2.2	2.7	NA	870	< 1	< 1	110,000	1.5	< 1	< 1	10,000	< 3	99,000	6,200	< 0.2	4.1	2,600	< 5	< 1 UJ	88,000	< 1	< 10	**190**	820
DUP0313021A	03/13/02	< 100	< 1	2.6	NA	380	< 1	< 1	110,000	1.5	< 1	< 1	10,000	< 3	95,000	6,600	< 0.2	3.9	2,400	< 5	< 1 UJ	81,000	< 1	< 10	20	840
	12/03/01	< 100	< 1	2.8	NA	290	< 1	< 1	74,000	1.7	< 1	< 1	14,000	< 3	88,000	5,300	< 0.2	4.7	2,400	< 5	< 1	58,000	< 1	< 10	12	630
DUP1203013A	12/03/01	< 100	< 1	2.8	NA	520	< 1	< 1	75,000	1.2	< 1	1.1	14,000	< 3	93,000	5,400	< 0.2	3.9	2,400	< 5	< 1	61,000	< 1	< 10	52	640
	09/07/01	< 100	< 1	2.5	NA	560 J+	< 1	< 1	83,000	< 1	< 1	< 1	14,000	< 3	89,000	5,900	< 0.2	5	2,000	< 5	< 1 UJ	62,000	< 1	< 10	84	630
	05/18/01	< 100	1.5	2.9	NA	450	< 1	< 1	81,000	1	< 1	1.3	14,000	< 3	77,000	6,300	< 0.2	5.4	2,500	< 5	< 1 UJ	62,000	< 1	< 10	62	710
	07/19/00	NA	< 60	< 5	NA	110	< 2	< 5	NA	< 10	< 20	< 10	NA	< 3	NA	NA	< 0.2	< 20	NA	**6.2**	< 5	NA	< 5	< 10	< 20	NA
LF6GW103	03/17/06	< 100	< 1	< 5	NA	61	< 2	< 1	31,000	26	< 10	< 1	< 100	< 3	49,000 J	< 10	< 0.2	< 20	< 500 UJ	< 5	< 1	59,000	< 1	< 10	< 20	430
	11/30/05	< 100	< 1	< 5	NA	71	< 2	< 1	37,000	29 J	< 10	< 1	160	< 3	59,000	< 10	< 0.2	< 20	530	< 5	< 1	70,000	< 1	< 10	< 20	570
DUP1130053B	11/30/05	< 100	< 1	< 5	NA	73	< 2	< 1	40,000	28 J	< 10	< 1	160	< 3	66,000	< 10	< 0.2	< 20	570	< 5	< 1	79,000	< 1	< 10	< 20	560
LF6GW103CL	11/30/05	< 100 U	< 2 U	< 2 U	NA	82	< 1 U	< 1 U	45,000	37	< 1 U	< 2 U	< 100 U	< 1 U	65,000	< 10 U	< 0.2 U	5.7	< 5,000 UN	< 2 U	< 1 U	74,000	< 1 U	11	< 20 U	602
	08/31/05	< 100	< 1	< 5	NA	87	< 2	< 1	45,000	29	< 10	< 1	360	< 3	67,000	< 10	< 0.2	< 20	580 J	< 5	< 1	77,000	< 1	< 10	< 20	660
	05/25/05	< 100 UJ	< 1	< 5	0.386 J	88 J	< 2	< 1	46,000	27	< 10	< 1	< 100	< 3	68,000	< 10	< 0.2	< 20	600	< 5	< 1	75,000	< 1	< 10	< 20	670
	04/05/05	< 100	< 1	< 5	NA	79	< 2	< 1	43,000 J	28	< 10	< 1	120	< 3	57,000	< 10 UJ	< 0.2	< 20	500	< 5	< 1	65,000	< 1	< 10	< 20	590
DUP0405053A	04/05/05	< 100	< 1	< 5	0.387 J	82	< 2	< 1	45,000 J	28	< 10	< 1	150	< 3	59,000	< 10 UJ	< 0.2	< 20	540	< 5	< 1	68,000	< 1	< 10	< 20	600
LF6GW103CL	04/05/05	< 100 U	< 2 U	< 2 U	NA	93.5	< 1 U	< 1 U	47,700	31.3	< 1 U	< 2 U	< 100 U	< 1 U	75,400	< 10 U	< 0.2 U	5.3	< 5,000 U	< 2 U	< 1 U	87,300	< 1 U	< 10 U	< 20 U	686
	12/16/04	< 100	< 1	< 5	NA	84	< 2	< 1	43,000	32	< 10	< 1	130	< 3	67,000	< 10	< 0.2	< 20	540	< 5	< 1	74,000	1	< 10	< 20	630
	08/12/04	< 100	< 1	< 5	NA	92	< 2	< 1	46,000	32	< 10	< 1	< 100	< 3	70,000	19	< 0.2	< 20	580	< 5	< 1	77,000	< 1	< 10	< 20	740
DUP0812042A	08/12/04	< 100	< 1	< 5	NA	95	< 2	< 1	50,000	33	< 10	< 1	140	< 3	73,000	< 10	< 0.2	< 20	620	< 5	< 1	80,000	< 1	< 10	< 20	660
	05/26/04	< 100	< 1	< 5	NA	91	< 2	< 1	50,000	29	< 10	< 1	110	< 3	75,000	< 10	< 0.2	< 20	560	< 5	< 1	83,000	< 1	< 10	< 20	760
	03/15/04	< 100	< 1	< 5	NA	92	< 2	< 1	47,000	31	< 10	5.5	< 100	< 3	74,000	< 10	< 0.2	< 20	620	< 5	< 1	79,000	< 1	12	< 20	730
	12/09/03	< 100	1.6	< 5	NA	100	< 2	< 1	53,000	32	< 10	1.7	330	< 3	80,000	< 10	< 0.2	< 20	620	< 5	< 1 UJ	85,000	< 1	< 10	< 20	610
	08/14/03	< 100	< 1	< 5	NA	90	< 2	< 1	49,000	33	< 10	< 1	210	< 3	73,000	< 10	< 0.2	< 20	570	< 5	< 1 UJ	78,000	< 1	< 10	< 20	710
	06/10/03	< 100	< 1	< 5	NA	77	< 2	< 1	49,000	28	< 10	< 1	< 100	< 3	74,000	< 10	< 0.2	< 20	550	< 5	< 1	76,000	< 1	< 10	< 20	630
	03/19/03	< 100 UJ	< 1	< 1	NA	76	< 1	< 1	59,000 J	28 J	< 1	< 1	< 100	< 3	95,000 J	< 10 UJ	< 0.2	6.8	600	< 5	< 1 UJ	100,000 J	< 1	< 10	< 10	740
	12/06/02	< 100	< 1	< 1	NA	86	< 1	< 1	46,000	33	< 1	1.1	130	< 3	69,000	< 10 UJ	< 0.2	7.2	570	< 5	< 1 UJ	76,000	< 1	< 10	< 10	650
	09/05/02	< 100	1.4	< 1	NA	410	< 1	< 1	47,000	34	< 1	< 1	100	< 3	73,000	< 10	< 0.2	7.1	770	< 5	< 1 UJ	82,000	< 1	< 10	**130**	630 J-
	06/05/02	< 100	< 1	< 1	NA	400	< 1	< 1	48,000	34	< 1	< 1	180	< 3	76,000	< 10	< 0.2	7.1	780	< 5	< 1	82,000	< 1	< 10	**130**	640
	03/13/02	< 100	< 1	< 1	NA	410	< 1	< 1	48,000	30	< 1	< 1	140	< 3	75,000	< 10	< 0.2	6.7	780	< 5	< 1 UJ	84,000	< 1	< 10	96	650
	12/04/01	< 100	1.6	< 1	NA	620	< 1	< 1	53,000	37 J	< 1	9.9	< 100	< 3	80,000	< 10	< 0.2	9.5 J	1,300	< 5	< 1	92,000	< 1	< 10	**260**	680
	08/29/01	< 100	1	< 1	NA	750 J+	< 1	< 1	44,000	36	< 1	1.5	200	< 3	74,000	< 10	< 0.2	7.1	940	< 5	< 1 UJ	82,000	< 1	< 10	**170**	630
	05/17/01	< 100	< 1	< 1	NA	170	< 1	< 1	< 500 R	35 J	< 1	< 1	330	< 3	270,000	< 10	< 0.2	6.5	690 J	< 5	< 1	300,000	< 1	< 10	20	610
	07/19/00	NA	< 60	< 5	NA	58	< 2	< 5	NA	27	< 20	< 10	NA	< 3	NA	NA	< 0.2	< 20	NA	< 5	< 5	NA	< 5	< 10	< 20	NA
LF6GW104	03/17/06	< 100	< 1	< 5	NA	46	< 2	< 1	41,000	18	< 10	< 1	< 100	< 3	65,000 J	10	< 0.2	< 20	< 500 UJ	< 5	< 1	69,000	< 1	< 10	< 20	770
	12/07/05	< 100	< 1	< 5	NA	33	< 2	< 1	49,000	32	< 10	< 1	320	< 3	85,000	19	< 0.2	< 20	1,800	< 5	< 1	84,000	< 1	< 10	< 20	810
LF6GW105	03/20/06	< 100	< 1	< 5	NA	51	< 2	< 1	45,000	34	< 10	< 1	< 100	< 3	67,000	< 10	< 0.2	< 20	700	< 5	< 1	85,000	< 1	< 10	< 20	610
	12/07/05	< 100	< 1	< 5	NA	43	< 2	< 1	41,000	40	< 10	< 1	280	< 3	65,000	< 10	< 0.2	< 20	1,100	< 5	< 1	88,000	< 1	< 10	< 20	690
LF6GW106	03/20/06	< 100	< 1	< 5	NA	36	< 2	< 1	42,000	23	< 10	< 1	< 100	< 3	68,000	< 10	< 0.2	< 20	710	< 5	< 1	82,000	< 1	< 10	< 20	600
	12/07/05	< 100	< 1	< 5	NA	22	< 2	< 1	29,000	24	< 10	< 1	230	< 3	54,000	11	< 0.2	< 20	900	< 5	< 1	64,000	< 1	< 10	< 20	770

Table A-3-3
Results of Dissolved Metals Analyses
Fill Site 6
Presidio of San Francisco, California

Well Name	Sample Date	Aluminum	Antimony	Arsenic	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Total Dissolved Solids
	Analytical Method[1]	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	1632M	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW7470/ SW7470A	SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	SW6010/ SW6020	E160.1
		(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(μg/L)	(mg/L)
Cleanup Levels [2]		**--**	**6**	**10**	**10**	**1,000**	**4**	**1.1**	**--**	**50**	**--**	**11.8**	**--**	**3.2**	**--**	**--**	**0.012**	**100**	**--**	**5**	**4.1**	**--**	**1.7**	**--**	**106**	**--**
231GW09	03/15/06	< 100	< 1	< 5	NA	31	< 2	< 1	15,000	15	< 10	< 1	< 100	< 3	24,000	< 10	< 0.2	29	< 500	< 5	< 1	42,000	< 1	< 10	< 20	320 J
	11/29/05	< 100	< 1	< 5	NA	49	< 2	< 1	22,000	23 J	< 10	< 1	< 100	< 3	39,000	< 10	< 0.2	< 20	< 500	< 5	< 1	63,000	< 1	< 10	< 20	470
DUP1129052A	11/29/05	< 100	< 1	< 5	NA	49	< 2	< 1	24,000	23 J	< 10	1.1	< 100	< 3	40,000	< 10	< 0.2	< 20	< 500	< 5	< 1	64,000	< 1	< 10	< 20	540
	08/31/05 [3]	NA	NA	NA	0.405 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	480
	06/01/05	< 100	< 1	< 5	0.371	48 J	< 2	< 1	28,000	20	< 10	< 1	< 100	< 3	41,000	< 10	< 0.2	40	< 500 UJ	< 5	< 1	63,000	< 1	< 10	< 20	460
	04/04/05	< 100	< 1	< 5	0.344	46	< 2	< 1	25,000	19	< 10	< 1	< 100	< 3	41,000	< 10	< 0.2	85	< 500	< 5	< 1	62,000	1.2	< 10	< 20	450
	12/17/04	< 100	< 1	< 5	NA	53	< 2	< 1	25,000	21	< 10	< 1	< 100	< 3	42,000	< 10	< 0.2	36	< 500	< 5	< 1	65,000	< 1	< 10	< 20	490
DUP1217042A	12/17/04	< 100	< 1	< 5	NA	54	< 2	< 1	26,000	22	< 10	< 1	< 100	< 3	43,000	< 10	< 0.2	36	< 500	< 5	< 1	67,000	< 1	< 10	< 20	470
	08/12/04	< 100	< 1	< 5	NA	58	< 2	< 1	29,000	23	< 10	< 1 U	110	< 3	47,000	< 10	< 0.2	63	< 500	< 5	< 1	72,000	< 1	< 10	< 20	430
	05/27/04	< 100	< 1	< 5	NA	52	< 2	< 1	27,000	23	< 10	< 1	< 100	< 3	45,000	12	< 0.2	27	< 500	< 5	< 1	69,000	< 1	< 10	< 20	490
DUP0527042C	05/27/04	< 100	< 1	< 5	NA	53	< 2	< 1	28,000	24	< 10	< 1	< 100	< 3	47,000	12	< 0.2	27	< 500	< 5	< 1	71,000	< 1	< 10	< 20	510
231GW09CL	05/27/04	< 50	< 5	< 5	NA	54	< 1	< 1	28,000	23	< 7	18	570	< 3	45,000	14	< 0.2	28	NA	NA	NA	NA	NA	NA	NA	420
	03/18/04	< 100	< 1	< 5	NA	51	< 2	< 1	29,000	20	< 10	< 1	< 100	< 3	46,000	< 10	< 0.2	36	< 500	< 5	< 1 UJ	74,000	< 1	< 10	< 20	510 J
	12/04/03	< 100	2.9	< 5	NA	57	< 2	< 1	22,000	22	< 10	< 1	< 100	< 3	46,000	< 10	< 0.2	29	< 500	< 5	< 1	67,000	1.2	< 10	< 20	490
	08/15/03	< 100	1.1	< 5	NA	53	< 2	< 1	26,000	24	< 10	< 1	120	< 3	43,000	< 10	< 0.2	26	< 500	< 5	< 1 UJ	65,000	< 1	< 10	< 20 UJ	440
	06/10/03	< 100	< 1	< 5	NA	51	< 2	< 1	28,000	22	< 10	< 1	< 100	< 3	47,000	< 10	< 0.2	24	< 500	< 5	< 1	67,000	< 1	< 10	< 20	470
	01/13/99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	19.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	566
	10/14/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	18.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	530
	07/15/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	544
	04/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	19.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	790
	01/28/98	166	NA	NA	NA	NA	NA	NA	60,200	< 1	< 10	< 1	8,640	NA	60,700	1,510	NA	< 5	< 5,000	NA	NA	129,000	NA	< 10	NA	542
	10/23/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	523
	07/24/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA	592
	04/22/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100 J	NA	NA	19	NA	NA	NA	NA	NA	NA	NA	NA	NA	584
	01/28/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 100	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	557

Notes
1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001. The analytical methods used during previous quarters are identified in the respective quarterly reports.
2 - From Table 3 of the RAP (Treadwell & Rollo, 2003c).
3 - Due to computer/review error by the laboratory, sample 231GW09 was not analyzed by ICP-MS for the list of 22 metals. The sample had already been disposed of when the omission was discovered.
μg/L - micrograms per liter
mg/L - milligrams per liter
NA - Not analyzed
Groundwater samples collected from all site monitoring wells were field filtered and analyzed for dissolved metals.
CL suffix denotes a quality control duplicate sample was sent to the control laboratory.
Table 7 in the main report identifies all duplicate and split samples and the well from which they were collected.
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

Table 11 in the main report identifies current and historical data qualifiers.
Bold numbers indicate concentrations that exceed cleanup levels.
-- Cleanup level not established.

Table A-3-4
Results of Arsenic Speciation Analyses
Fill Site 6
Presidio of San Francisco, California

Location ID	**Sample Date**	**Inorganic Arsenic (As)**	**Arsenite (As III)**	**Arsenate (As V) [2]**	**Percentage of As III**	**Percentage of As V**
	Analytical Method[1]	1632M	1632M	1632M	--	--
		(µg/L)	(µg/L)	(µg/L)	%	%
Cleanup Levels [3]		**10**	--	--	--	--
LF6GW100	04/04/05	0.792	< 0.025 U	0.792	0	100
LF6GW101	04/04/05	1.22	< 0.025 U	1.22	0	100
LF6GW102	04/04/05	0.851 J	0.483 J	0.368 J	57	43
LF6GW103	04/05/05	0.386 J	< 0.025 U	0.386 J	0	100
DUP0405053A	04/05/05	0.397 J	< 0.025 U	0.397 J	0	100
231GW09	08/31/05	0.405 J	< 0.025 JU	0.405 J	0	100
	06/01/05	0.371	< 0.025 U	0.371	0	100
	04/04/05	0.344	< 0.025 U	0.344	0	100

Notes
1 - The identified analytical method(s) are for analyses performed beginning in the Second Quarter 2001.
2 - The concentration of As V was determined by the laboratory by subtracting the As III concentration from the inorganic As concentration. As III has been detected at greater concentrations than inorganic As, due to analytical variability. As V is reported as non-detect when As III is detected at a greater concentration than inorganic As.
3 - From Table 3 of the RAP (Treadwell & Rollo, 2003c).
-- Cleanup level not established.
µg/L - micrograms per liter
NA - Not analyzed
CL suffix denotes a quality control duplicate sample was sent to the control laboratory.
Table 7 in the main report identifies all duplicate and split samples and the well from which they were collected.
Table 11 in the main report identifies current and historical data qualifiers.
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

Table A-3-5
Results of Dissolved Gas and TOC Analyses
Fill Site 6
Presidio of San Francisco, California

Location ID	**Sample Date**	**Ethane**	**Ethene**	**Methane**	**TOC**
	Analytical Method[1]	RSK 175	RSK 175	RSK 175	SW9060
		mg/L	mg/L	mg/L	mg/L
LF6GW100	03/17/06	NA	NA	NA	3.5
	04/04/05	< 0.005	< 0.005	<0.005	3.0
LF6GW101	03/17/06	NA	NA	NA	1.4
	04/04/05	< 0.005	< 0.005	<0.005	1.5
LF6GW102	04/04/05	< 0.005	< 0.005	0.52	14
LF6GW103	03/17/06	NA	NA	NA	1.5
	04/04/05	0.026	< 0.005	<0.005	1.4
DUP0405053A	04/05/05	< 0.005	< 0.005	< 0.005	1.4
LF6GW103CL	04/05/05	< 0.0005 U	< 0.0015 U	< 0.0005 U	1.4
LF6GW104	03/17/06	NA	NA	NA	3
LF6GW105	03/20/06	NA	NA	NA	1.9
LF6GW106	03/20/06	NA	NA	NA	3
231GW09	03/15/06	NA	NA	NA	0.88
	11/29/05	< 0.005	< 0.005	< 0.005	1.3
DUP1129052A	11/29/05	< 0.005	< 0.005	< 0.005	0.99
	08/31/05	< 0.005	< 0.005	< 0.005	1.1
	06/01/05	< 0.005	< 0.005	< 0.005	1.2 J
	04/04/05	< 0.005	< 0.005	<0.005	1.3

Notes
1 - The identified analytical method(s) are for analyses performed beginning in the First Quarter 2005.
mg/L - milligrams per liter
TOC - Total Organic Carbon
CL suffix denotes a quality control duplicate sample was sent to the control laboratory.
Table 7 in the main report identifies all duplicate and split samples and the well from which they were collected.
Table 11 in the main report identifies current and historical data qualifiers.
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

Table A-3-6
Groundwater Elevation Summary
Fill Site 6
Presidio of San Francisco, California

Well ID	Date	Average Depth to Water [1] (feet)	Top of Casing Elevation (feet PLLW)	Groundwater Elevation (feet PLLW)	Well Type
LF6GW100	03/06/06	12.02	28.73	16.71	MW
	11/28/05	12.78	28.73	15.95	MW
	08/29/05	12.22	28.73	16.51	MW
	05/23/05	12.05	28.73	16.68	MW
	03/14/05	12.30	28.73	16.43	MW
	12/13/04	13.23	28.73	15.50	MW
	08/09/04	13.70	28.73	15.03	MW
	05/24/04	13.74	28.73	14.99	MW
	03/08/04	13.78	28.73	14.95	MW
	12/01/03	16.02	28.73	12.71	MW
	08/11/03	17.45	28.73	11.28	MW
	06/02/03	17.31	28.73	11.42	MW
	03/10/03	15.36	28.73	13.37	MW
	12/02/02	13.73	28.73	15.00	MW
	08/26/02	13.22	28.73	15.51	MW
	05/28/02	13.02	28.73	15.71	MW
	03/04/02	12.60	28.73	16.13	MW
	11/26/01	13.25	28.73	15.48	MW
	08/27/01	13.47	28.73	15.26	MW
	05/08/01	12.87	28.73	15.86	MW
LF6GW101	03/06/06	11.13	27.03	15.90	MW
	11/28/05	11.80	27.03	15.23	MW
	08/29/05	11.13	27.03	15.90	MW
	05/23/05	10.93	27.03	16.10	MW
	03/14/05	11.18	27.03	15.85	MW
	12/13/04	11.85	27.03	15.18	MW
	08/09/04	12.25	27.03	14.78	MW
	05/24/04	12.48	27.03	14.55	MW
	03/08/04	12.67	27.03	14.36	MW
	12/01/03	14.31	27.03	12.72	MW
	08/11/03	15.14	27.03	11.89	MW
	06/02/03	14.85	27.03	12.18	MW
	03/10/03	13.15	27.03	13.88	MW
	12/02/02	12.27	27.03	14.76	MW
	08/26/02	11.68	27.03	15.35	MW
	05/28/02	11.74	27.03	15.29	MW
	03/04/02	11.31	27.03	15.72	MW
	11/26/01	12.05	27.03	14.98	MW
	08/27/01	12.14	27.03	14.89	MW
	05/08/01	11.44	27.03	15.59	MW
LF6GW102 [2]	05/23/05	NM	36.87	NM	MW
	03/14/05	19.75	36.87	17.12	MW
	12/13/04	21.70	36.87	15.17	MW
	08/09/04	22.35	36.87	14.52	MW
	05/24/04	21.86	36.87	15.01	MW
	03/08/04	20.50	36.87	16.37	MW
	12/01/03	23.06	36.87	13.81	MW
	08/11/03	23.22	36.87	13.65	MW
	06/02/03	22.72	36.87	14.15	MW
	03/10/03	21.53	36.87	15.34	MW
	12/02/02	22.23	36.87	14.64	MW

Table A-3-6
Groundwater Elevation Summary
Fill Site 6
Presidio of San Francisco, California

Well ID	Date	Average Depth to Water [1] (feet)	Top of Casing Elevation (feet PLLW)	Groundwater Elevation (feet PLLW)	Well Type
LF6GW102 [2]	08/26/02	21.87	36.87	15.00	MW
	05/28/02	21.60	36.87	15.27	MW
	03/04/02	20.86	36.87	16.01	MW
	11/26/01	21.93	36.87	14.94	MW
	08/27/01	22.15	36.87	14.72	MW
	05/08/01	21.62	36.87	15.25	MW
LF6GW103	03/06/06	7.09	18.41	11.32	MW
	11/28/05	7.25	18.41	11.16	MW
	08/29/05	6.10	18.41	12.31	MW
	05/23/05	5.50	18.41	12.91	MW
	03/14/05	6.08	18.41	12.33	MW
	12/13/04	6.53	18.41	11.88	MW
	08/09/04	6.78	18.41	11.63	MW
	05/24/04	6.68	18.41	11.73	MW
	03/08/04	6.40	18.41	12.01	MW
	12/01/03	7.70	18.41	10.71	MW
	08/11/03	7.73	18.41	10.68	MW
	06/02/03	7.52	18.41	10.89	MW
	03/10/03	6.36	18.41	12.05	MW
	12/02/02	6.46	18.41	11.95	MW
	08/26/02	6.23	18.41	12.18	MW
	05/28/02	6.18	18.41	12.23	MW
	03/04/02	5.82	18.41	12.59	MW
	11/26/01	6.57	18.41	11.84	MW
	08/27/01	6.56	18.41	11.85	MW
	05/08/01	6.26	18.41	12.15	MW
LF6GW104	03/06/06	9.23	25.74	16.51	MW
	11/28/05	10.25	25.74	15.49	MW
LF6GW105	03/06/06	21.70	41.97	20.27	MW
	11/28/05	22.68	41.97	19.29	MW
LF6GW106	03/06/06	9.72	25.69	15.97	MW
	11/28/05	10.47	25.69	15.22	MW
LF6PZ101	03/06/06	0.90	10.44	9.54	PZ
LF6PZ102	03/06/06	0.00	11.59	11.59	PZ
LF6PZ103	03/06/06	2.70	14.09	11.39	PZ
LF6PZ104	03/06/06	6.82	17.45	10.63	PZ
LF6PZ105	03/06/06	0.67	13.75	13.08	PZ
LF6PZ106	03/06/06	4.45	15.23	10.78	PZ
231GW09	03/06/06	12.60	24.28	11.68	MW
	11/28/05	13.11	24.28	11.17	MW
	08/29/05	12.36	24.28	11.92	MW
	05/23/05	11.15	24.28	13.13	MW
	03/14/05	11.50	24.28	12.78	MW
	12/13/04	12.18	24.28	12.10	MW
	08/09/04	12.75	24.28	11.53	MW
	05/24/04	12.63	24.28	11.65	MW
	03/08/04	12.22	24.28	12.06	MW
	12/01/03	13.15	24.28	11.13	MW
	08/11/03	13.38	24.28	10.90	MW
	06/02/03	13.22	24.28	11.06	MW
	03/10/03	12.25	24.28	12.03	MW
	12/02/02	12.43	24.28	11.85	MW
	08/26/02	12.26	24.28	12.02	MW
	05/28/02	12.20	24.28	12.08	MW
	03/04/02	11.97	24.28	12.31	MW

Table A-3-6
Groundwater Elevation Summary
Fill Site 6
Presidio of San Francisco, California

Well ID	Date	Average Depth to Water [1] (feet)	Top of Casing Elevation (feet PLLW)	Groundwater Elevation (feet PLLW)	Well Type
231GW09	11/26/01	12.31 [3]	24.28	11.97	MW
	08/27/01	12.65	24.28	11.63	MW
	05/08/01	12.06	24.28	12.22	MW

Notes
1 - All depth to water measurements are an average of three measurements recorded in the field.
2 - Well was abandoned during the Second Quarter 2005.
3 - The depth to water was improperly recorded as 2.31 feet rather than 12.31 feet on 26 November 2001.
MW- Monitoring well
NM - Not measured
PZ - Piezometer
feet PLLW - feet above Presidio Lower Low Water vertical datum
This table will be issued in the next semi-annual report due Oct. 15th, 2006.

APPENDIX I

FINAL SURVEY AND UTILITY AS-BUILTS

DISTRIBUTION

Draft
Construction Completion Report
Fill Site 6A Remediation
Presidio of San Francisco, California

July 31, 2006

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Draft Construction Completion Report, Fill Site 6A Remediation
Presidio of San Francisco, California

MACTEC

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